Turn Signal And Emergency Flasher System Troubleshooting - New Beetle

CHECKING TURN SIGNAL AND EMERGENCY FLASHER SYSTEM

REQUIRED FOR TROUBLESHOOTING

- Multimeter Fluke 83
- Connector Test Kit VW 1594
- Valid wiring diagram

Before starting troubleshooting, battery negative terminal must be securely tightened.

PREREQUISITE

- S2 - Fuse 2 (10A) in fuse panel OK!
- S239 - Fuse 39 (15A) in fuse panel OK!
- All turn signal bulbs OK!

CAUTION: DO NOT damage, enlarge or bend connector terminals or cavities by forcing probes into them when performing electrical checks. Always use connector test kit VW 1594 to make the necessary electrical connections.

PREPARATION

- Switch OFF ignition and all electrical consumers
- Remove turn signal switch. See **STEERING COLUMN SWITCHES** .
- Remove turn signal switch trim.

TROUBLESHOOTING

If malfunction has not been eliminated after all test steps, replace Emergency Flasher Switch (E3).

After repairing malfunction, please perform functional test of turn signal and emergency flasher system.

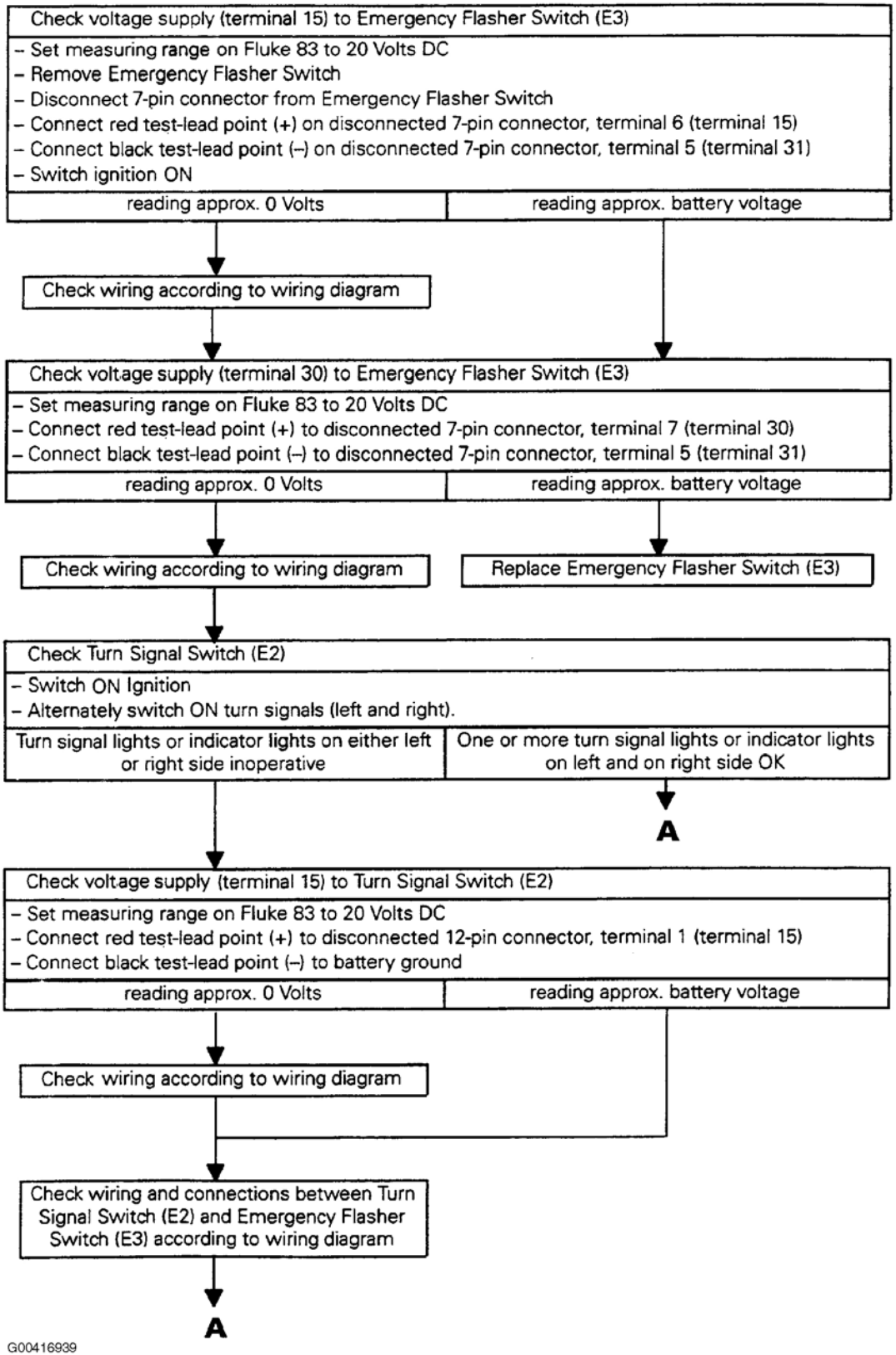
Check voltage supply (terminal 15) to Emergency Flasher Switch (E3)
– Set measuring range on Fluke 83 to 20 Volts DC
– Remove Emergency Flasher Switch
– Disconnect 7-pin connector from Emergency Flasher Switch
– Connect red test-lead point (+) on disconnected 7-pin connector, terminal 6 (terminal 15)
– Connect black test-lead point (–) on disconnected 7-pin connector, terminal 5 (terminal 31)
– Switch ignition ON
reading approx. 0 Volts
reading approx. battery voltage
Check wiring according to wiring diagram
Check voltage supply (terminal 30) to Emergency Flasher Switch (E3)
– Set measuring range on Fluke 83 to 20 Volts DC
– Connect red test-lead point (+) to disconnected 7-pin connector, terminal 7 (terminal 30)
– Connect black test-lead point (–) to disconnected 7-pin connector, terminal 5 (terminal 31)
reading approx. 0 Volts
reading approx. battery voltage
Check wiring according to wiring diagram
Replace Emergency Flasher Switch (E3)
Check Turn Signal Switch (E2)
– Switch ON Ignition
– Alternately switch ON turn signals (left and right).
Turn signal lights or indicator lights on either left or right side inoperative
One or more turn signal lights or indicator lights on left and on right side OK
A
Check voltage supply (terminal 15) to Turn Signal Switch (E2)
– Set measuring range on Fluke 83 to 20 Volts DC
– Connect red test-lead point (+) to disconnected 12-pin connector, terminal 1 (terminal 15)
– Connect black test-lead point (–) to battery ground
reading approx. 0 Volts
reading approx. battery voltage
Check wiring according to wiring diagram
Check wiring and connections between Turn Signal Switch (E2) and Emergency Flasher Switch (E3) according to wiring diagram
A
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Fig. 1: Turn Signal & Emergency Flasher Troubleshooting (1 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

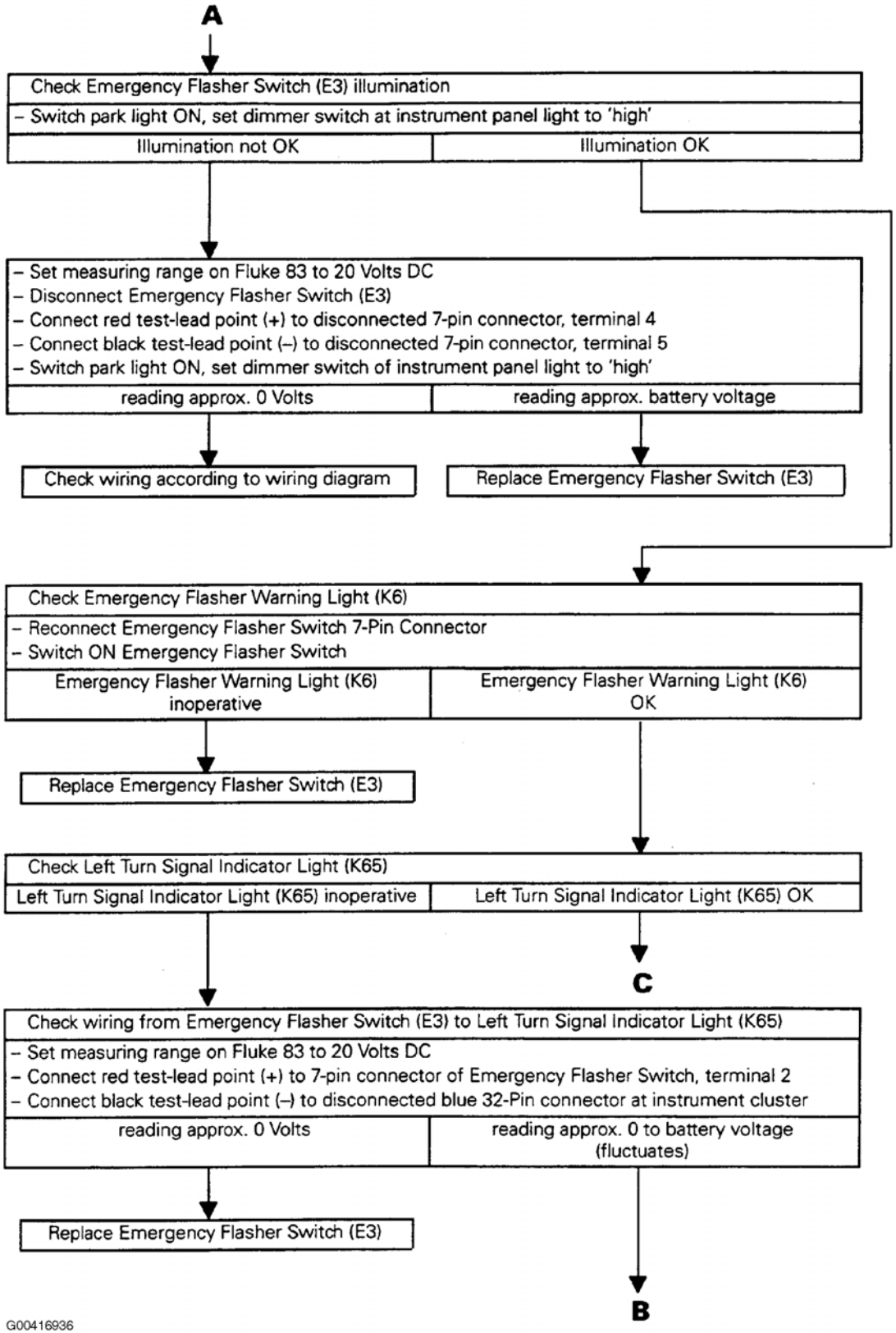
A
Check Emergency Flasher Switch (E3) illumination
– Switch park light ON, set dimmer switch at instrument panel light to 'high'
Illumination not OK
Illumination OK
– Set measuring range on Fluke 83 to 20 Volts DC
– Disconnect Emergency Flasher Switch (E3)
– Connect red test-lead point (+) to disconnected 7-pin connector, terminal 4
– Connect black test-lead point (–) to disconnected 7-pin connector, terminal 5
– Switch park light ON, set dimmer switch of instrument panel light to 'high'
reading approx. 0 Volts
reading approx. battery voltage
Check wiring according to wiring diagram
Replace Emergency Flasher Switch (E3)
Check Emergency Flasher Warning Light (K6)
– Reconnect Emergency Flasher Switch 7-Pin Connector
– Switch ON Emergency Flasher Switch
Emergency Flasher Warning Light (K6) inoperative
Emergency Flasher Warning Light (K6) OK
Replace Emergency Flasher Switch (E3)
Check Left Turn Signal Indicator Light (K65)
Left Turn Signal Indicator Light (K65) inoperative
Left Turn Signal Indicator Light (K65) OK
C
Check wiring from Emergency Flasher Switch (E3) to Left Turn Signal Indicator Light (K65)
– Set measuring range on Fluke 83 to 20 Volts DC
– Connect red test-lead point (+) to 7-pin connector of Emergency Flasher Switch, terminal 2
– Connect black test-lead point (–) to disconnected blue 32-Pin connector at instrument cluster
reading approx. 0 Volts
reading approx. 0 to battery voltage (fluctuates)
Replace Emergency Flasher Switch (E3)
B
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Fig. 2: Turn Signal & Emergency Flasher Troubleshooting (2 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

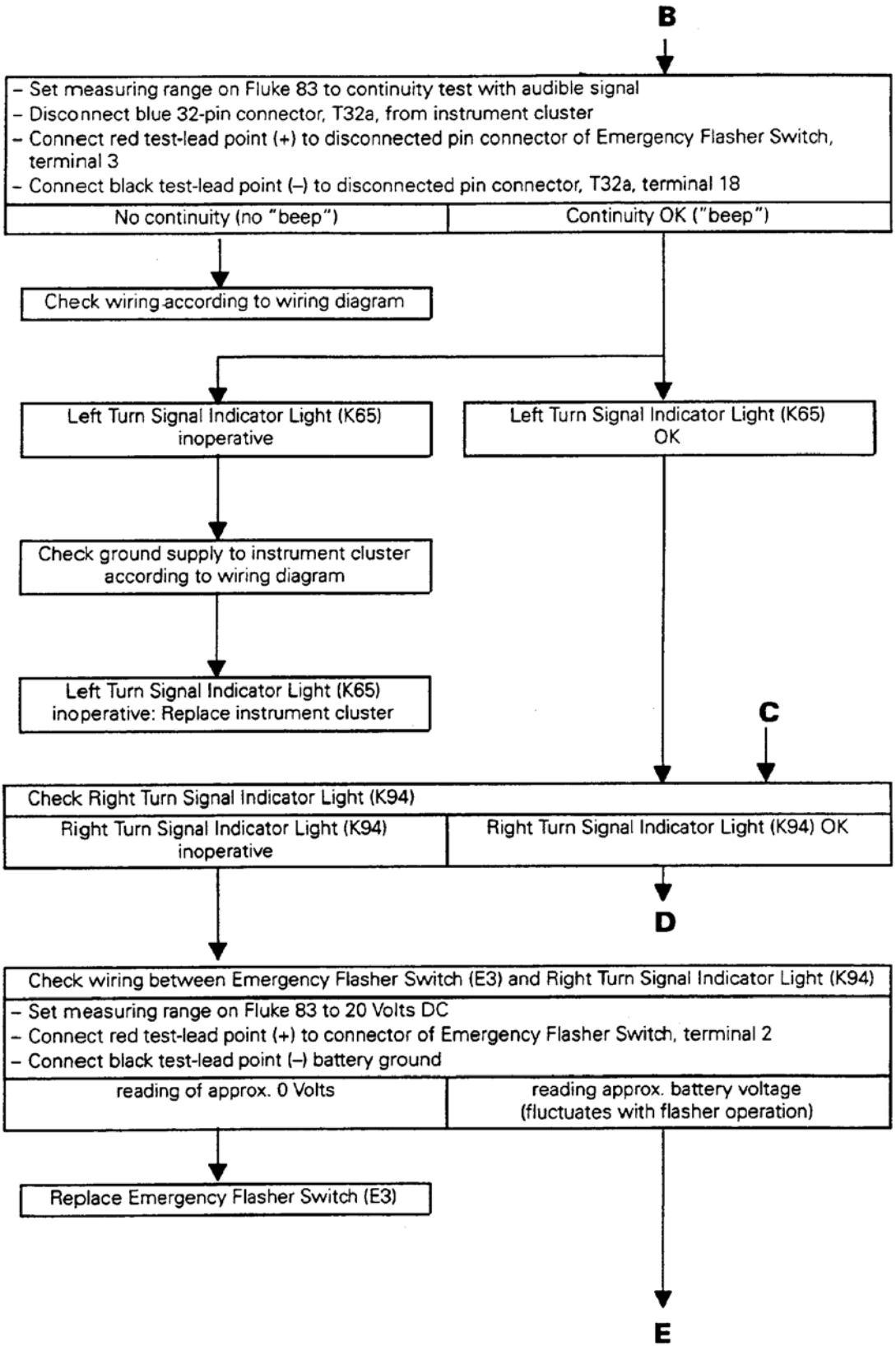
B
– Set measuring range on Fluke 83 to continuity test with audible signal
– Disconnect blue 32-pin connector, T32a, from instrument cluster
– Connect red test-lead point (+) to disconnected pin connector of Emergency Flasher Switch, terminal 3
– Connect black test-lead point (–) to disconnected pin connector, T32a, terminal 18
No continuity (no "beep")
Continuity OK ("beep")
Check wiring according to wiring diagram
Left Turn Signal Indicator Light (K65) inoperative
Left Turn Signal Indicator Light (K65) OK
Check ground supply to instrument cluster according to wiring diagram
Left Turn Signal Indicator Light (K65) inoperative: Replace instrument cluster
C
Check Right Turn Signal Indicator Light (K94)
Right Turn Signal Indicator Light (K94) inoperative
Right Turn Signal Indicator Light (K94) OK
D
Check wiring between Emergency Flasher Switch (E3) and Right Turn Signal Indicator Light (K94)
– Set measuring range on Fluke 83 to 20 Volts DC
– Connect red test-lead point (+) to connector of Emergency Flasher Switch, terminal 2
– Connect black test-lead point (–) battery ground
reading of approx. 0 Volts
reading approx. battery voltage (fluctuates with flasher operation)
Replace Emergency Flasher Switch (E3)
E

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Fig. 3: Turn Signal & Emergency Flasher Troubleshooting (3 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

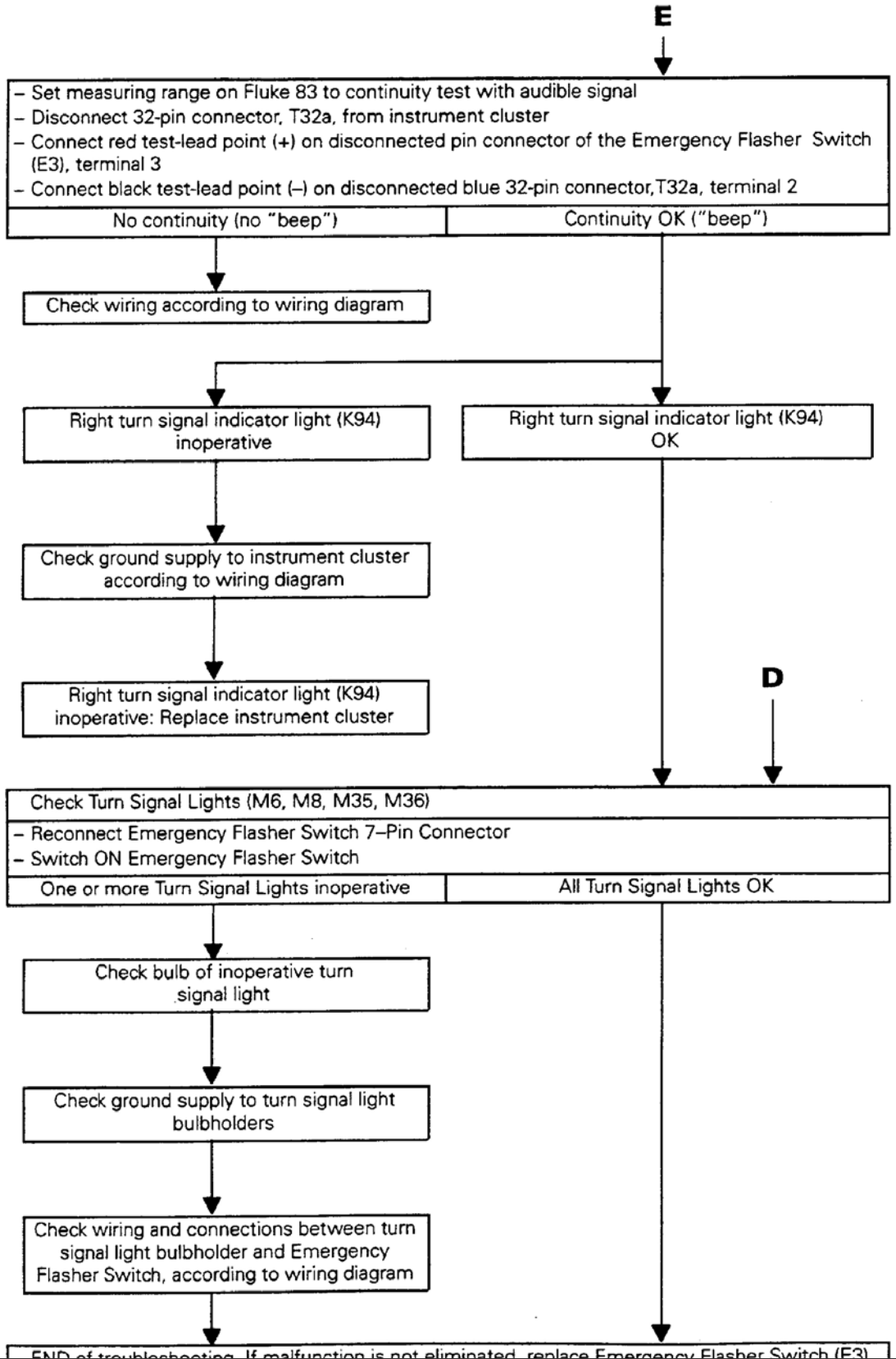

E
– Set measuring range on Fluke 83 to continuity test with audible signal
– Disconnect 32-pin connector, T32a, from instrument cluster
– Connect red test-lead point (+) on disconnected pin connector of the Emergency Flasher Switch (E3), terminal 3
– Connect black test-lead point (–) on disconnected blue 32-pin connector,T32a, terminal 2
No continuity (no "beep")
Continuity OK ("beep")
Check wiring according to wiring diagram
Right turn signal indicator light (K94) inoperative
Right turn signal indicator light (K94) OK
Check ground supply to instrument cluster according to wiring diagram
Right turn signal indicator light (K94) inoperative: Replace instrument cluster
D
Check Turn Signal Lights (M6, M8, M35, M36)
– Reconnect Emergency Flasher Switch 7–Pin Connector
– Switch ON Emergency Flasher Switch
One or more Turn Signal Lights inoperative
All Turn Signal Lights OK
Check bulb of inoperative turn signal light
Check ground supply to turn signal light bulbholders
Check wiring and connections between turn signal light bulbholder and Emergency Flasher Switch, according to wiring diagram

Fig. 4: Turn Signal & Emergency Flasher Troubleshooting (4 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Dual Horns Troubleshooting - New Beetle

CHECKING DUAL HORNS

NOTE: If only one horn works, check the wiring to the inoperative horn first. See appropriate SYSTEM WIRING DIAGRAMS article.

REQUIRED FOR TROUBLESHOOTING:

- Electrical Circuit Tester VW1466
- Valid wiring diagram

NOTE: Before starting troubleshooting, battery negative terminal (-) must be securely tightened.

PREREQUISITE:

- S240 Fuse 40 (20A) OK

PREPARATION:

- Remove lower instrument panel cover. See **COVER IN DRIVER'S FOOT WELL, REMOVING AND INS** .
- Remove dual horn relay J4 (production control number 204) from relay location 1
- Insert test adapter VW1466/3 into relay location 1
- Connect VW 1466 to test adapter

TROUBLESHOOTING PROCEDURE:

- Perform test steps according to **Dual Horn Test Table** .
- If specified value/test result is obtained, proceed to next step (test result OK)
- If specified value/test result is not obtained, use **Possible Causes If Specified Value/Test Result Was Not Obtained** for troubleshooting and repair.
- Use valid wiring diagram for circuit testing
- Disconnect test leads after each step

If malfunction has not been eliminated after performing steps 1 to 3, replace dual horn relay J4! .

After repairing malfunction, perform test on dual horns.

Dual Horn Test Table

Test step:	**1**	**2**	**3**
Check:	Power supply (B+) (terminal 15)	Horn button H	Dual horn H1
Connector assignment VW 1466			
red wire	from 6 to S+	from 4 to S+	from 8 to 2
black wire	from S- to L+	from S- to L+	-
blue wire	from L- to 8	from L- to 6	-
Additional steps:	Switch on ignition	Press horn button H	-
Specified value/test result:	Indicator lamp (L) lights up	Indicator lamp (L) lights up	Dual horn H1 sounds

Possible Causes If Specified Value/Test Result Was Not Obtained

Wiring Relay panel / component or component / component	-	S1/6 to H	S2/2 to H1 S1/4 to S240
or Horn Button H	-	X	-
or Dual horn H1	-	-	X
or Relay panel	X	X	X

HEADLIGHTS

HEADLIGHTS, ASSEMBLY

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch off ignition and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified. See BATTERY, DISCONNECTING AND RECONNECTING .**

NOTE: After performing any repairs or service that could affect headlight aim, check/adjust aim, See HEADLIGHTS, ADJUSTING .

NOTE: The following list refers to items in Fig. 1 .

1. **Gasket**
   - Replace if damaged
2. **Cover**

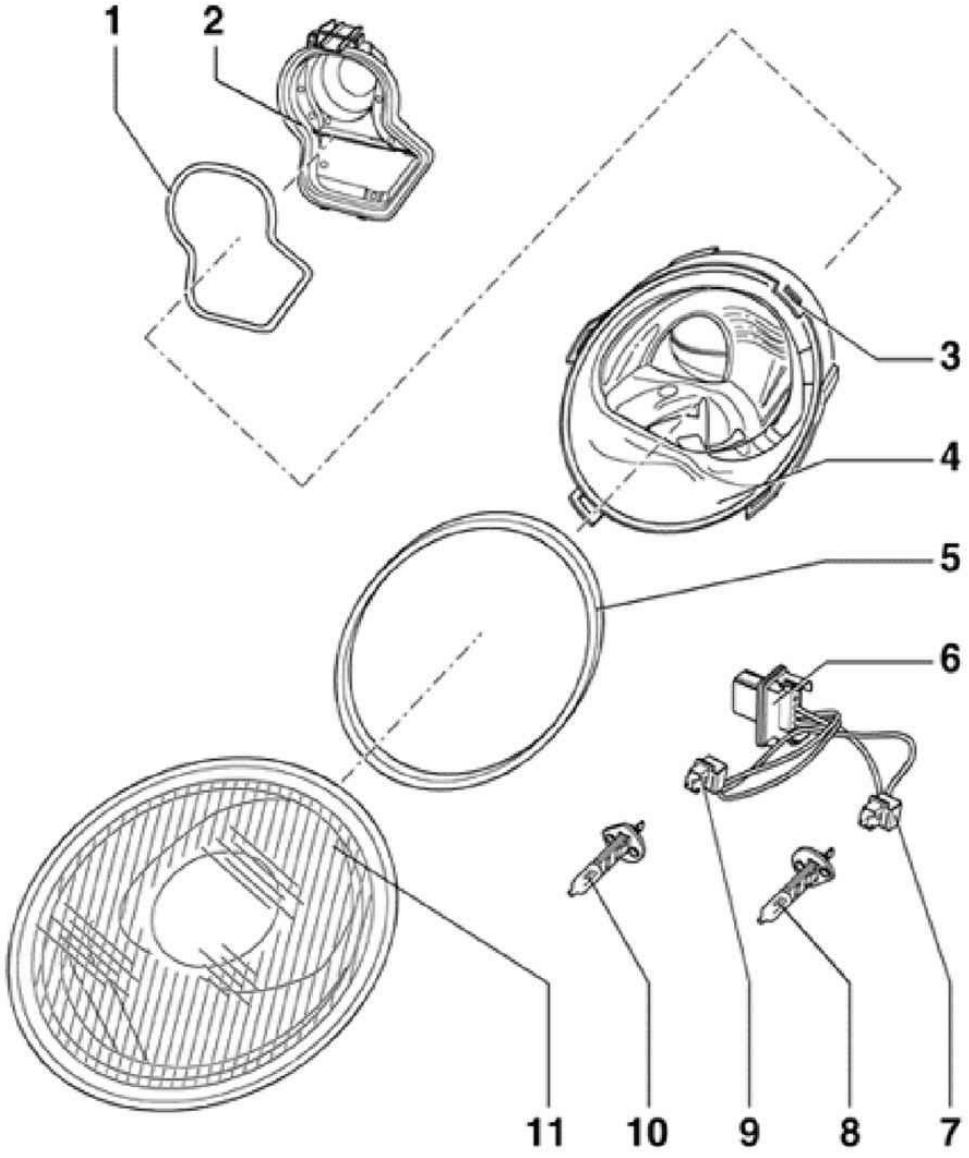
   Removing

   - through 08.98, See **HEADLIGHTS THROUGH 08.98, REMOVING AND INSTALLING**
   - from 09.98, See **HEADLIGHTS FROM 09.98, REMOVING AND INSTALLING**
3. **Retainers**
   - Qty. 4
4. **Headlight housing**

   Removing and installing

   - through 08.98, See **HEADLIGHTS THROUGH 08.98, REMOVING AND INSTALLING**
   - from 09.98, See **HEADLIGHTS FROM 09.98, REMOVING AND INSTALLING**
5. **Gasket**
   - Replace if damaged

6. **Harness connector**
    - Clipped into headlight housing
7. **Electrical connector for high beam bulb**
8. **High beam bulb**
    - H1 12 V, 55 Watt
    - Replacing, See **HIGH BEAM BULB, REMOVING**
9. **Electrical connector for low beam bulb**
10. **Low beam bulb**
    - H1 12 V, 55 Watt
    - Replacing, See **HEADLIGHT BULBS, REPLACING**
11. **Headlight glass**
    - Replace if gasket is faulty
    - Removing: unclip retainers Pos. 3



1 - Gasket

2 - Cover

3 - Retainers

4 - Headlight housing

5 - Gasket

6 - Harness connector

7 - Electrical connector for high beam bulb

8 - High beam bulb

9 - Electrical connector for low beam bulb

10 - Low beam bulb

11 - Headlight glass

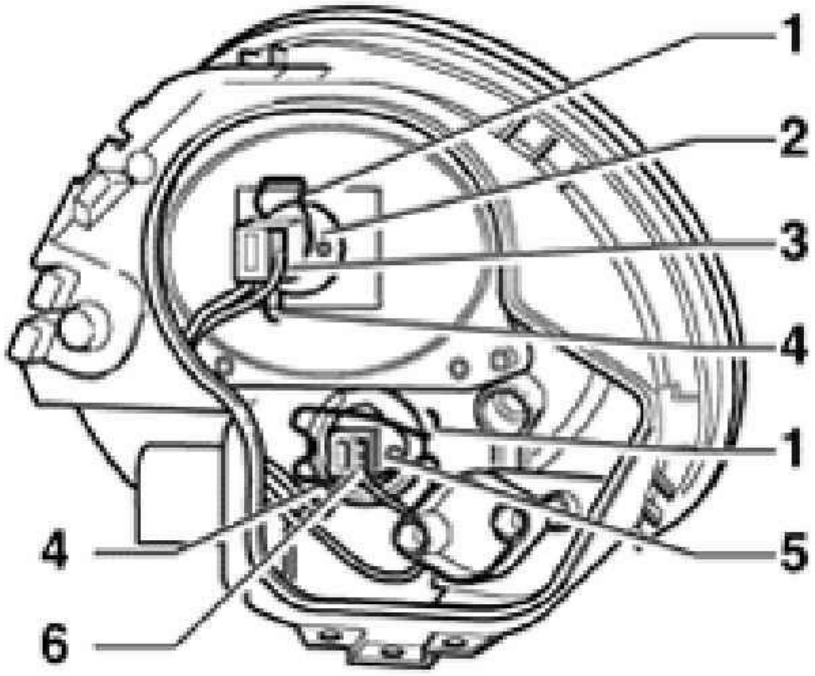
Fig. 1: Identifying Headlights Assembly Components
Courtesy of VOLKSWAGEN OF AMERICA, INC.

HEADLIGHT BULBS, REPLACING

Headlight bulbs, assembly

NOTE: The following list refers to items in Fig. 2 .

1. Retaining clip
2. High beam bulb
3. Electrical connector for high beam
4. Locating lugs
5. Low beam bulb
6. Electrical connector for low beam



1 - Retaining clip

2 - High beam bulb

3 - Electrical connector for high beam

4 - Locating lugs

5 - Low beam bulb

6 - Electrical connector for low beam

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Fig. 2: Identifying Headlight Bulbs

Courtesy of VOLKSWAGEN OF AMERICA, INC.

Low beam bulb, removing

- Remove applicable front headlight.

  See **HEADLIGHTS THROUGH 08.98, REMOVING AND INSTALLING** or **HEADLIGHTS FROM 09.98, REMOVING AND INSTALLING** .

- Remove cover on rear of headlight insert.
- Disconnect electrical connector -6- from low beam bulb.
- Push spring retaining clip -1- over lugs -4- and move to side.
- Pull low beam bulb -5- out from reflector.

Low beam bulb, installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation, can cause the glass to cloud over.

- Insert new bulb so lugs on laminated plate align with grooves in reflector.
- After installing new low beam bulb check headlight aim.

High beam bulb, removing

- Remove applicable front headlight.

  See **HEADLIGHTS THROUGH 08.98, REMOVING AND INSTALLING** or **HEADLIGHTS FROM 09.98, REMOVING AND INSTALLING** .

- Remove cover on rear of headlight insert.
- Disconnect electrical connector -3- from high beam bulb.
- Push spring retaining clip -1- over the lugs -4- and move to side.
- Pull high beam bulb -2- out from reflector.

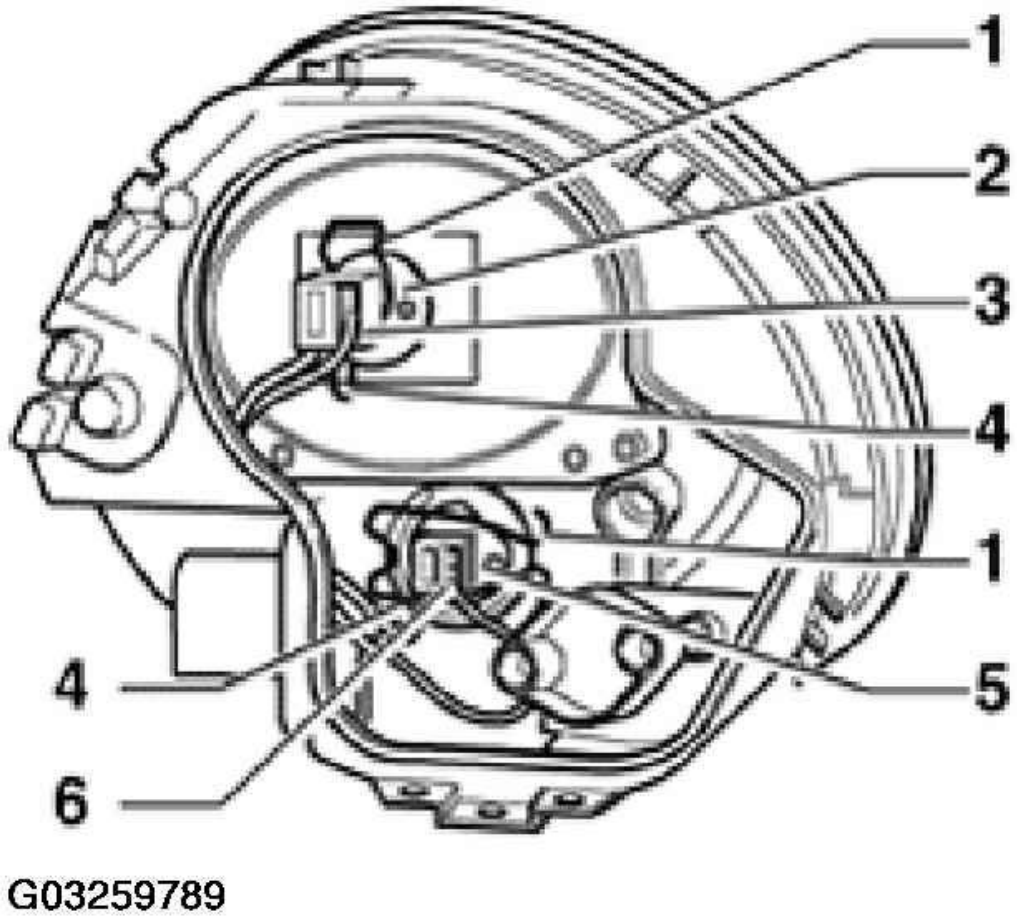

Fig. 3: Identifying Headlight Bulbs
Courtesy of VOLKSWAGEN OF AMERICA, INC.

High beam bulb, installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation, can cause the glass to cloud over.

- Insert new bulb so lugs on laminated plate align with grooves in reflector.
- After installing new high beam bulb check headlight aim.

HEADLIGHTS THROUGH 08.98, REMOVING AND INSTALLING

Left headlight, removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Open clamp -1-.
- Press release button -2- and push up lever -3-.
- Pull headlight housing -4- slightly forward.
- Disconnect electrical connectors from headlight.
- Remove headlight housing -4-.

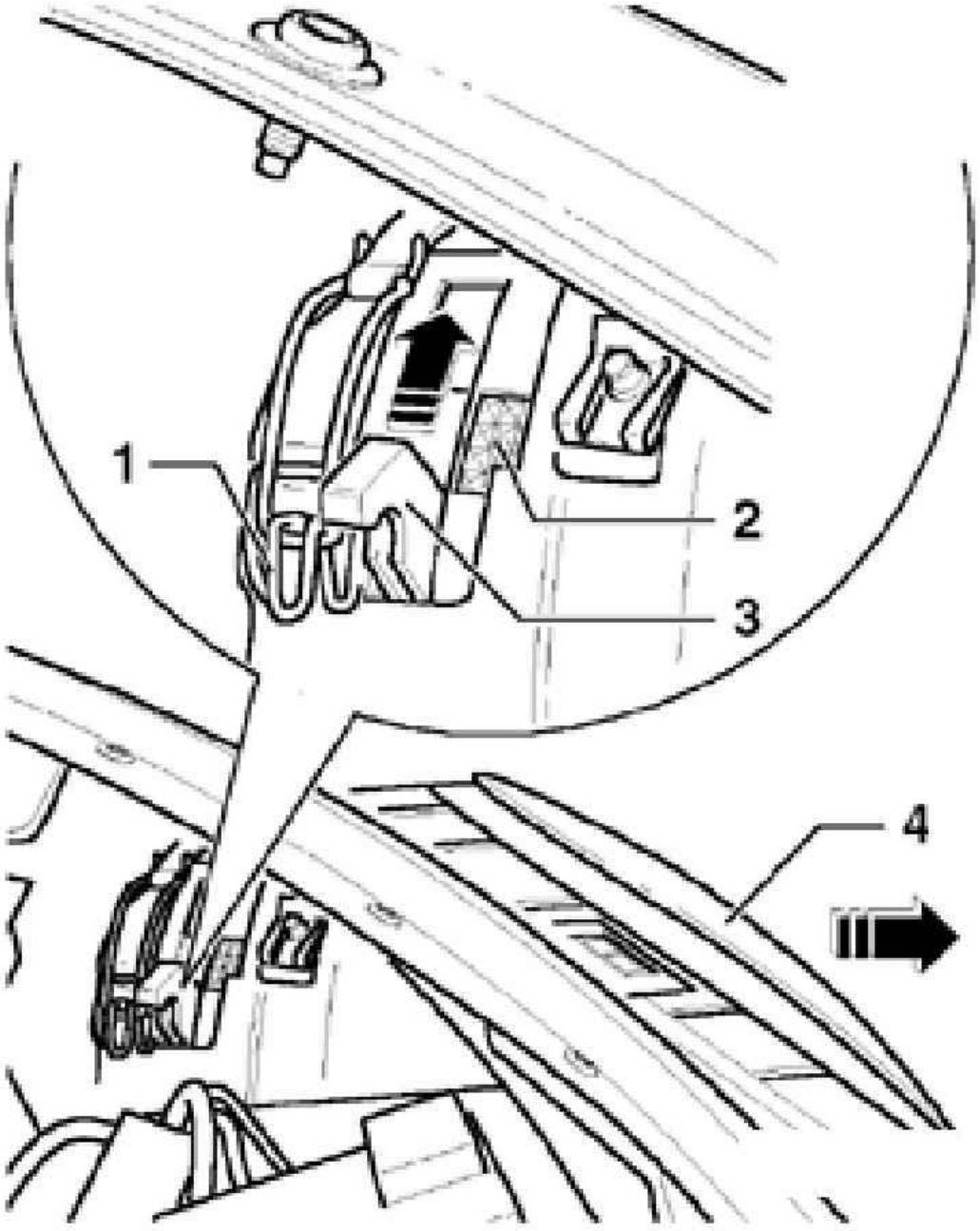

Fig. 4: Removing Button And Push Up Lever
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Left headlight, installing

- Connect electrical connectors -1- to headlight.
- Insert headlight into guide tracks (arrows) and push inward.

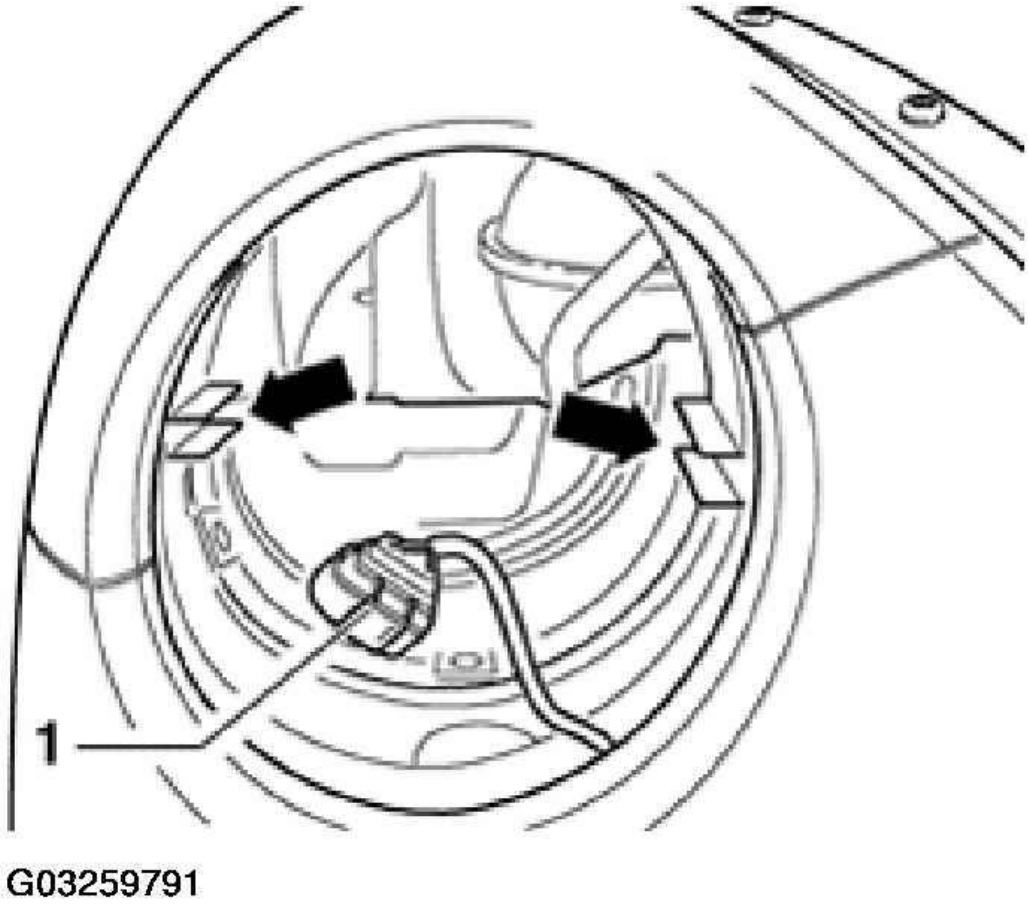

Fig. 5: Inserting Headlight Into Guide Tracks
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Push down on lever in engine compartment to lock headlight.
- Reconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Check headlight aim.

  See **HEADLIGHT ADJUSTMENT, CHECKING** .

Right headlight, removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Open clamp -1-.
- Press release button -2- and push up lever -3-.

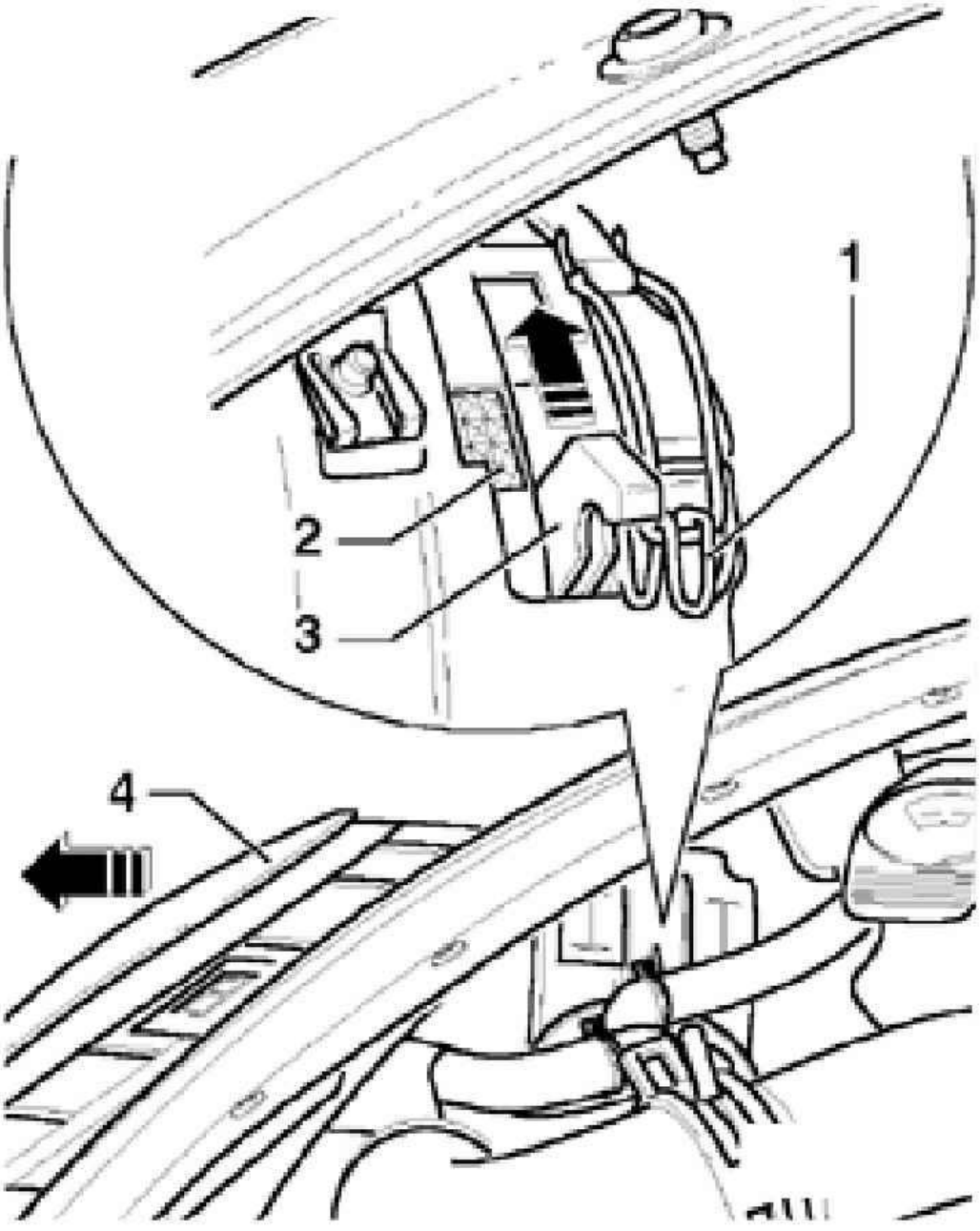

Fig. 6: Pressing Release Button And Pushing Up Lever
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Pull headlight housing -4- slightly forward.
- Disconnect electrical connectors from headlight.
- Remove headlight housing -4-.

Right headlight, installing

- Connect electrical connectors to headlight.
- Insert headlight into guide tracks (arrows) and push inward.

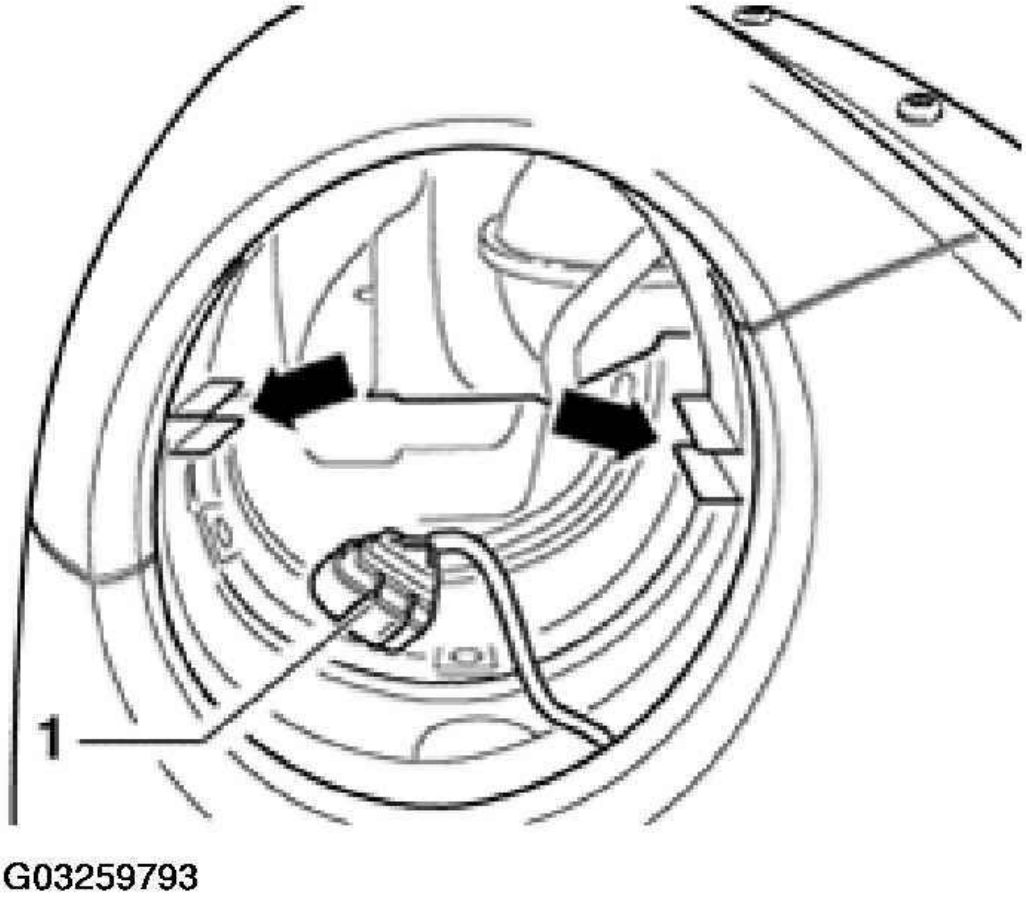

Fig. 7: Inserting Headlight Into Guide Tracks
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Push down on lever in engine compartment to lock headlight.
- Reconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .

- Check headlight aim.

  See **HEADLIGHT ADJUSTMENT, CHECKING** .

HEADLIGHTS FROM 09.98, REMOVING AND INSTALLING

Left headlight, removing

- Disconnect battery, See .
- Press release button -1- and push up lever -2-.
- Pull headlight housing -3- slightly forward.
- Disconnect electrical connectors from headlight.
- Remove headlight housing -3-.

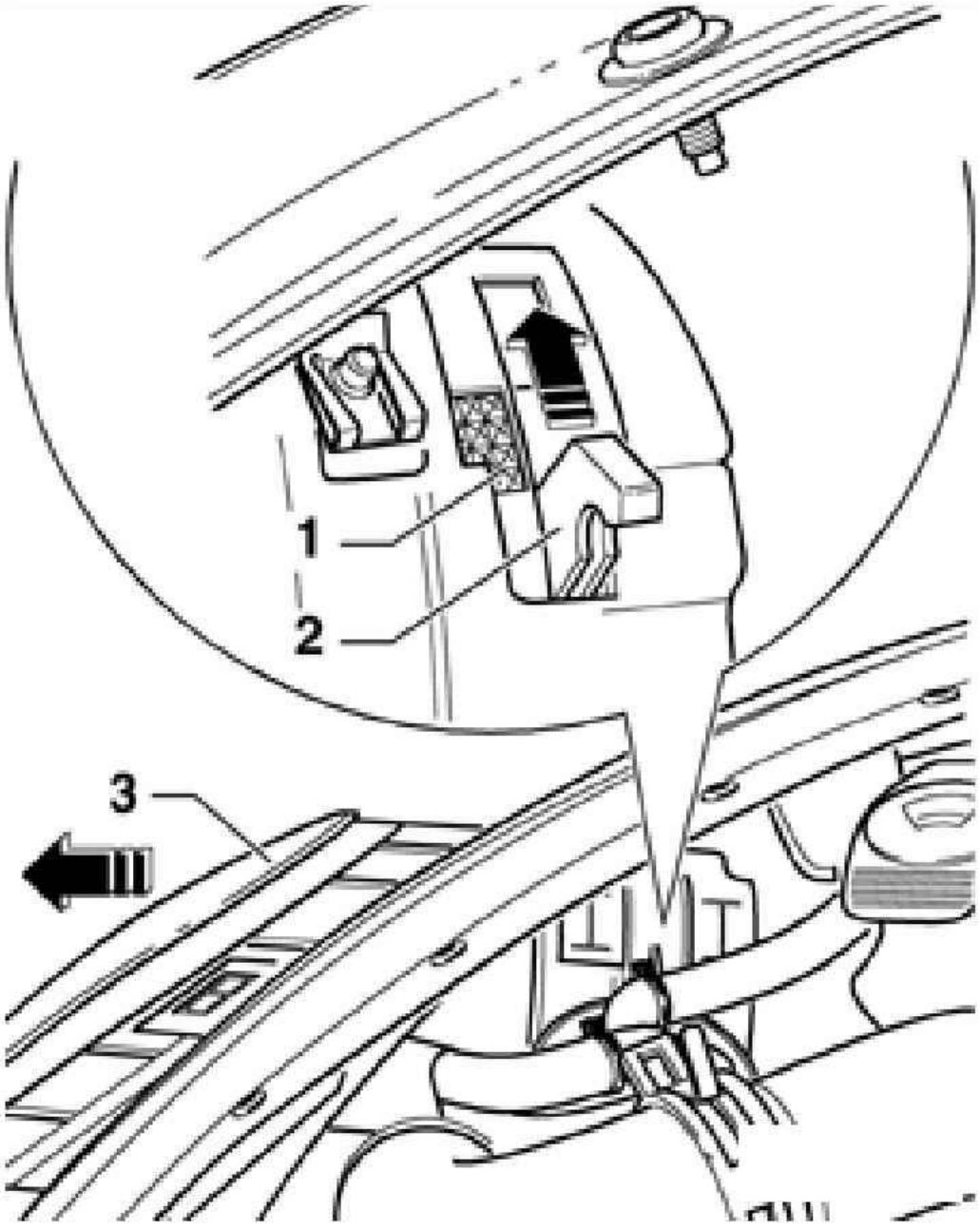

Fig. 8: Removing Button And Push Up Lever (Left)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Left headlight, installing

- Connect electrical connectors -1- to headlight.
- Insert headlight into guide tracks (arrows) and push inward.

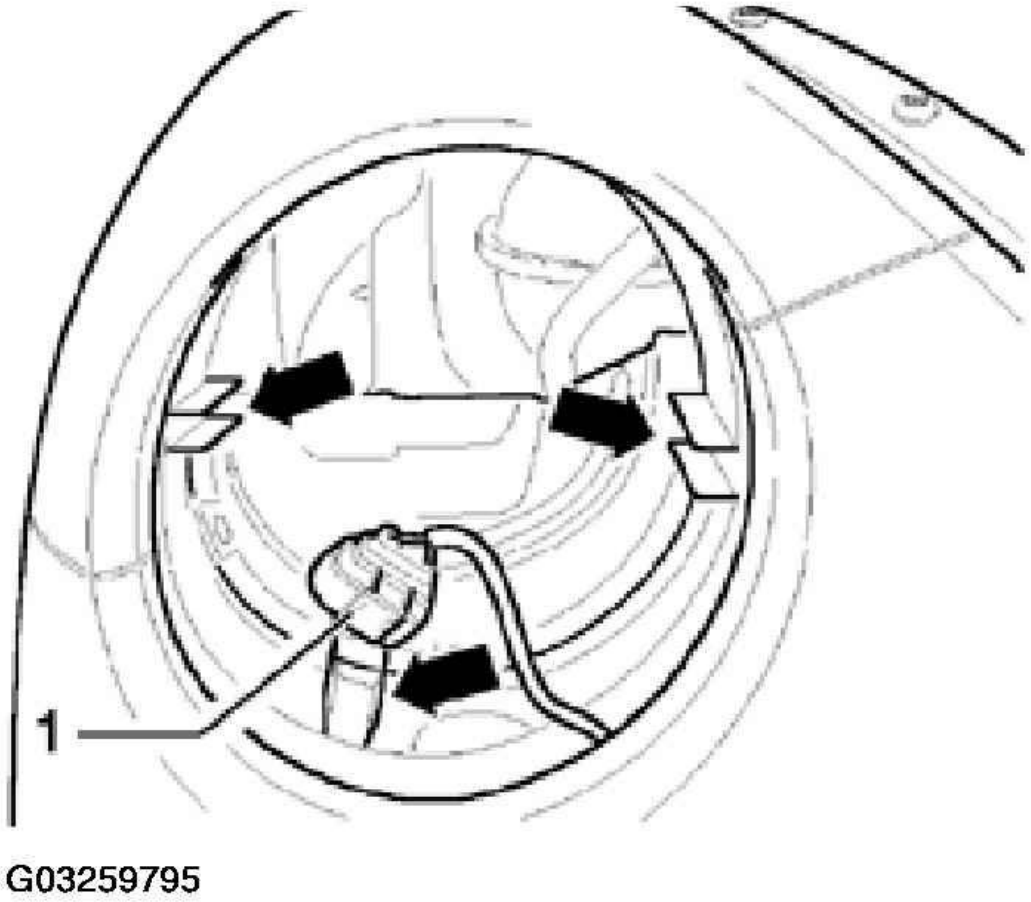

Fig. 9: Inserting Headlight Into Guide Tracks (Left)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Push down on lever in engine compartment to lock headlight.
- Reconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Check headlight aim.

  See **HEADLIGHT ADJUSTMENT, CHECKING** .

Right headlight, removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .

- Press release button -1- and push up lever -2-.

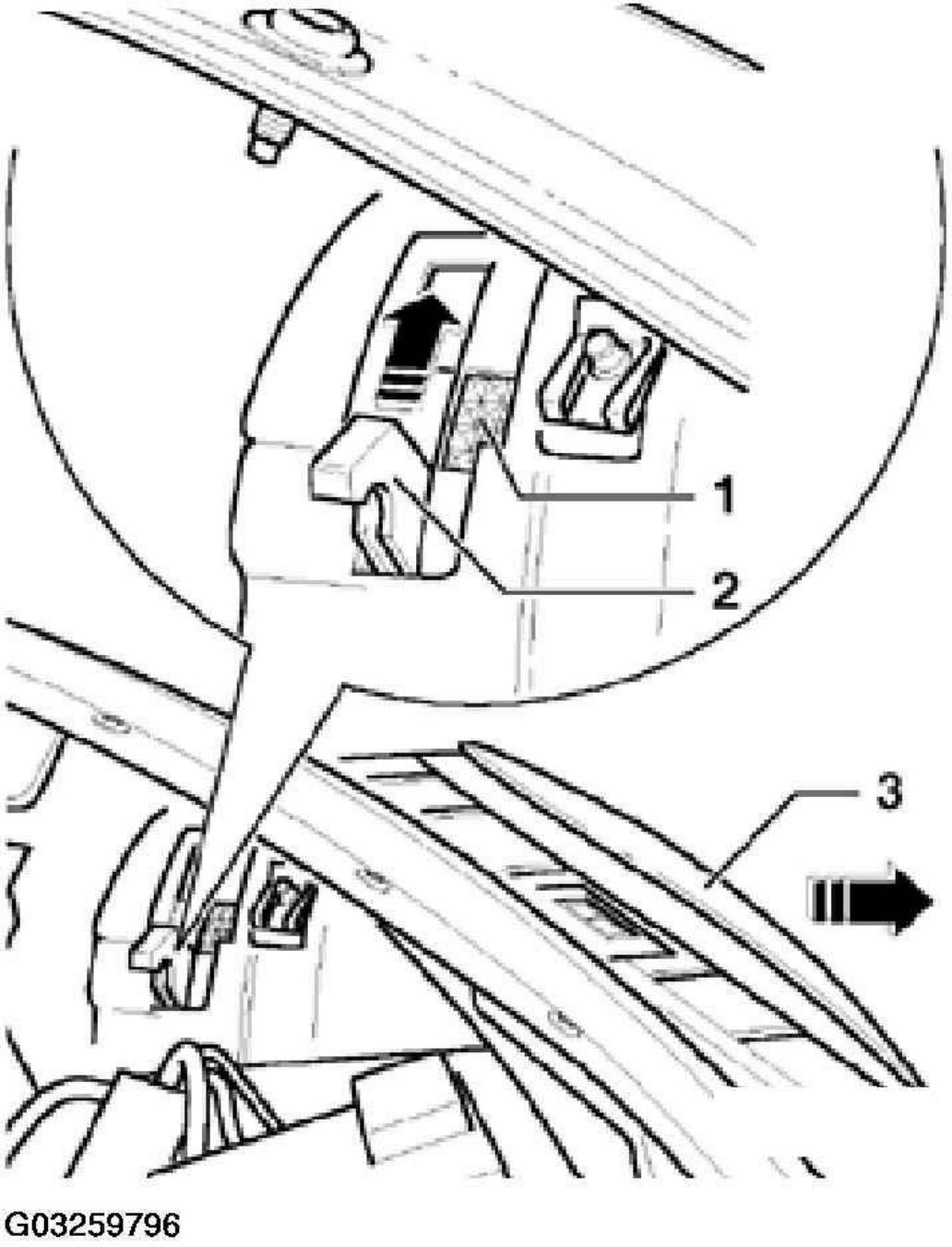

Fig. 10: Pressing Release Button And Pushing Up Lever (Right)

Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Pull headlight housing -3- slightly forward.
- Disconnect electrical connectors from headlight.
- Remove headlight housing -3-.

Right headlight, installing

- Connect electrical connectors to headlight.
- Insert headlight into guide tracks (arrows) and push inward.

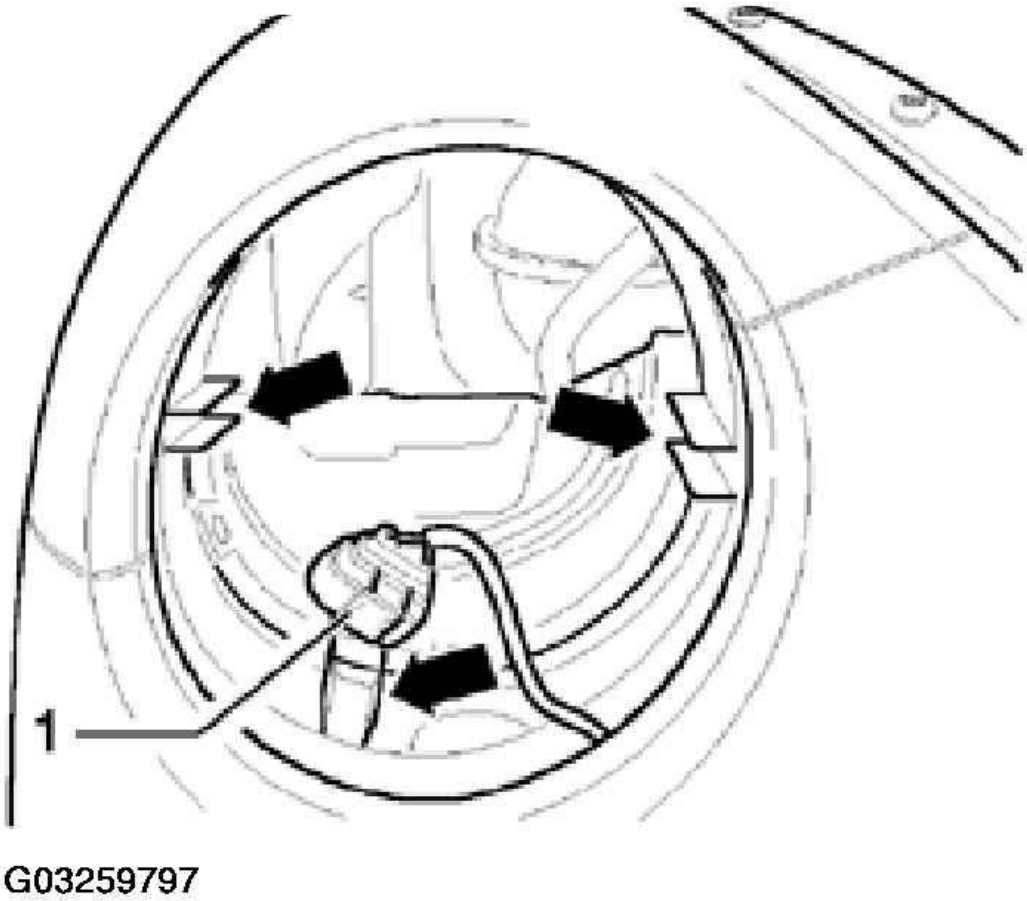

Fig. 11: Inserting Headlight Into Guide Tracks
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Push down on lever in engine compartment to lock headlight.

- Reconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Check headlight aim.

  See **HEADLIGHT ADJUSTMENT, CHECKING** .

HEADLIGHTS, ADJUSTING

NOTE:

- **Always adjust lights with optical headlight aimer VAS 5107, using detailed aiming procedure and specifications**

  See HEADLIGHT ADJUSTMENT, CHECKING .

- **Low and high beams are adjusted simultaneously.**

Left headlight:

A. Height adjustment
B. Lateral adjustment

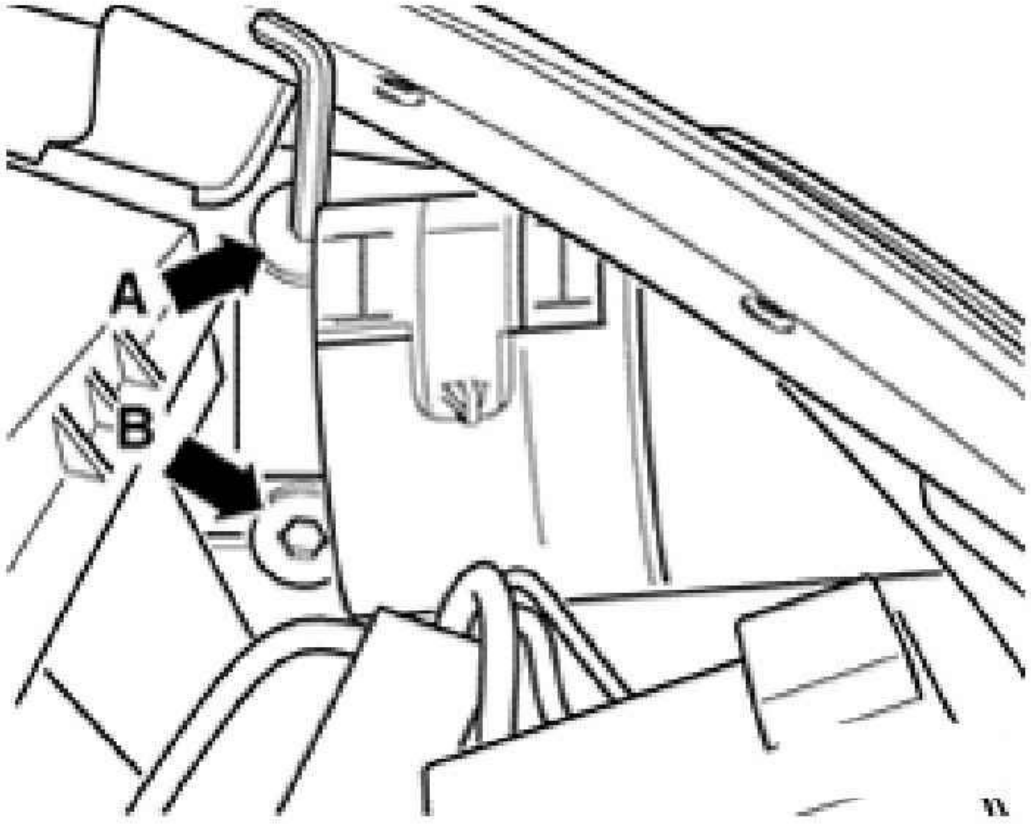

Fig. 12: Identifying Left Headlight Adjustment Points
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Right headlight:

A. Height adjustment
B. Lateral adjustment
    - Turn adjusting screws for lateral adjustment -B- and height adjustment -A- until correct setting is achieved.

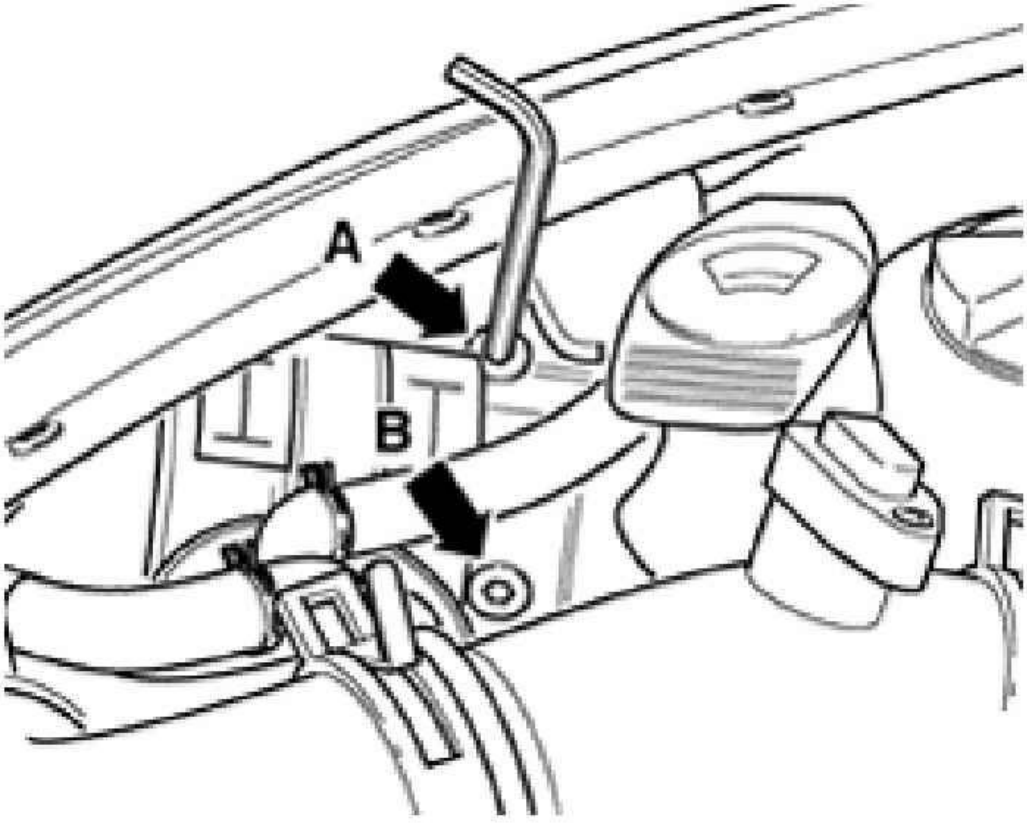

Fig. 13: Identifying Right Headlight Adjustment Points
Courtesy of VOLKSWAGEN OF AMERICA, INC.

FOG LAMPS THROUGH 06.00, REMOVING AND INSTALLING

Removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Disconnect electrical connection at fog lamp assembly.
- Remove front end assembly

  See **FRONT END, ASSEMBLY OVERVIEW** .

- Remove screws -arrows- on inside of front bumper.

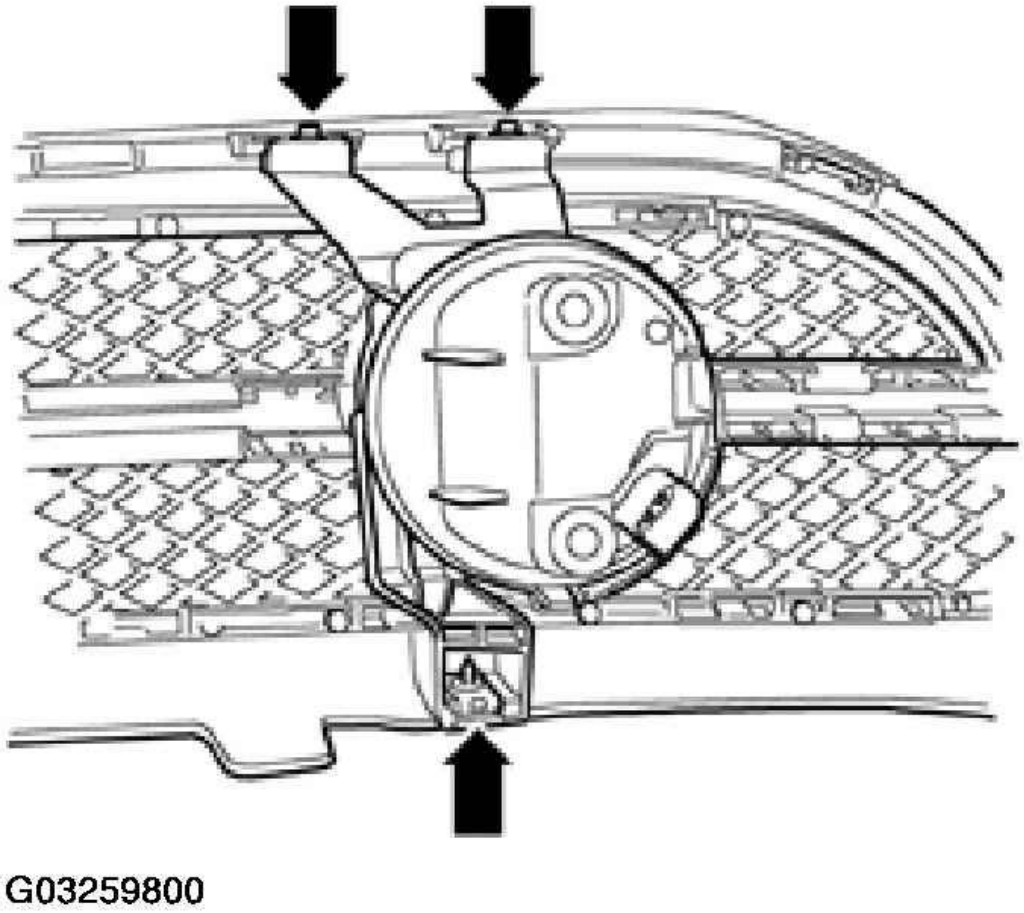

Fig. 14: Locating Fog Lamp Screws (Through 06.00)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove fog lamp assembly.

Installing

- Insert fog lamp assembly into front bumper and secure with screws.
- Connect electrical connection.
- Reinstall front end.

  See **FRONT END, ASSEMBLY OVERVIEW** .

- Reconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Check fog lamp aim

See **HEADLIGHT ADJUSTMENT, CHECKING** .

FOG LAMPS FROM 07.00, REMOVING AND INSTALLING.

NOTE:

- **A revised front end with removable air grille was introduced from 07.00 production.**
- **The air grille is unclipped from the lower portion of the front end and removed together with the fog lamps.**

Removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Disconnect electrical connections at fog lamp assembly.
- Remove lower front air grille

  See **FRONT END, ASSEMBLY OVERVIEW** .

- Remove screws -arrows-.
- Remove fog lamp assembly.

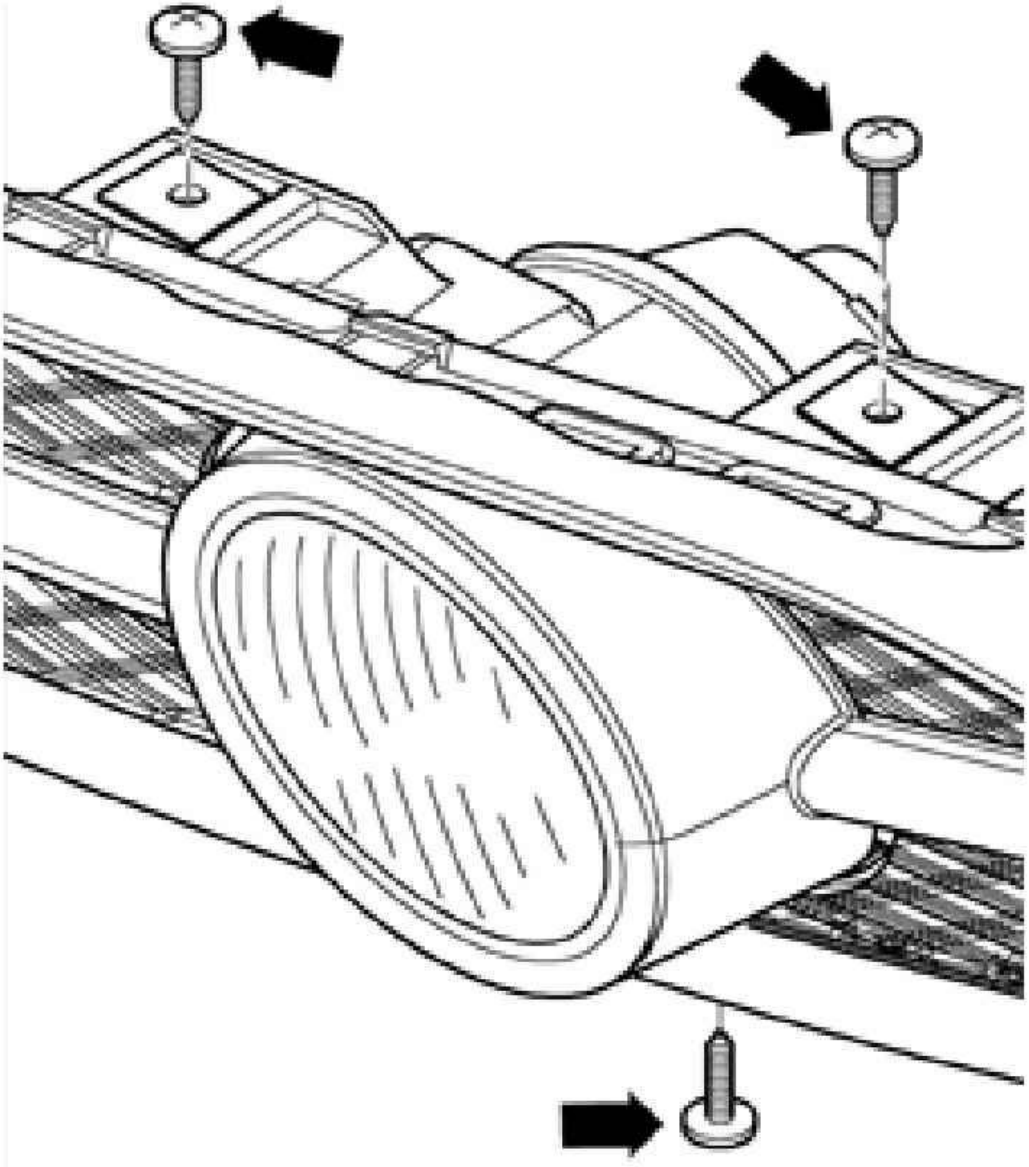

Fig. 15: Locating Fog Lamp Assembly Screws (From 07.00)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

- Insert fog lamp assembly in air grille and secure with screws.

- Reinstall air grille.

  See **FRONT END, ASSEMBLY OVERVIEW** .

- Connect electrical connection.
- Reconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Check fog lamp aim

  See **FOG LAMP, ALIGNMENT** .

FOG LAMPS, ADJUSTING

NOTE: Always adjust fog lamps with optical headlight aimer VAS 5107, using detailed aiming procedure and specifications

See **FOG LAMP, ALIGNMENT** .

Fog lamp (left)

- Turn adjustment screw -arrow- to adjust beam height. Lateral adjustments are not possible.

Adjustment screw on right fog lamp is a mirror image.

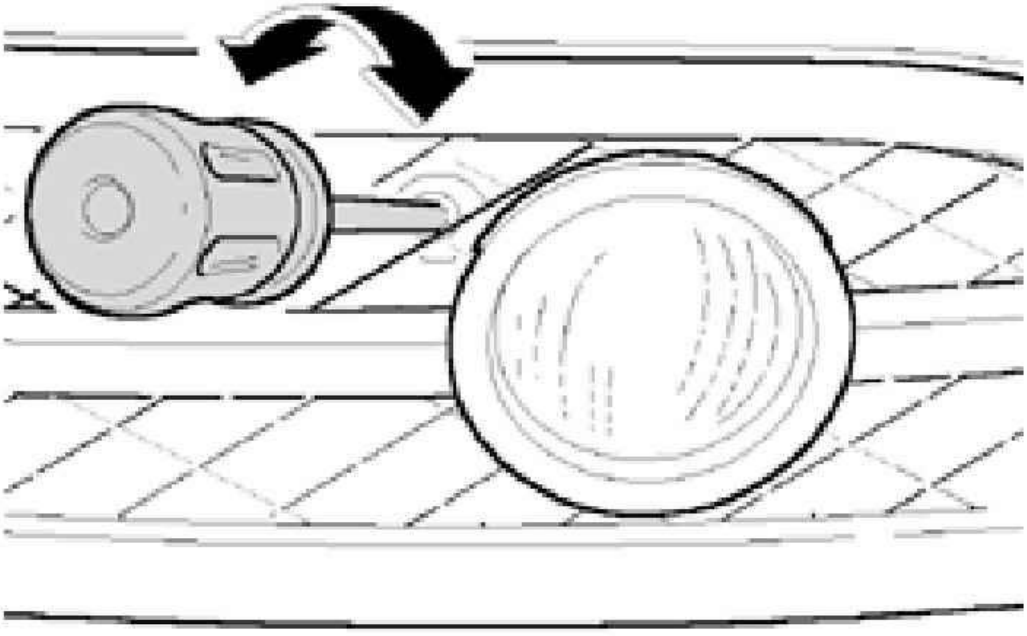

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Fig. 16: Turning Fog Lamp Adjustment Screw
Courtesy of VOLKSWAGEN OF AMERICA, INC.

FOG LAMP BULB, REPLACING

CAUTION:
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Disconnect electrical connection at fog lamp assembly.
- Turn sealing cap on rear of assembly and remove.
- Disconnect electrical connection from fog lamp bulb.
- Release spring retaining clip.
- Remove bulb from reflector.

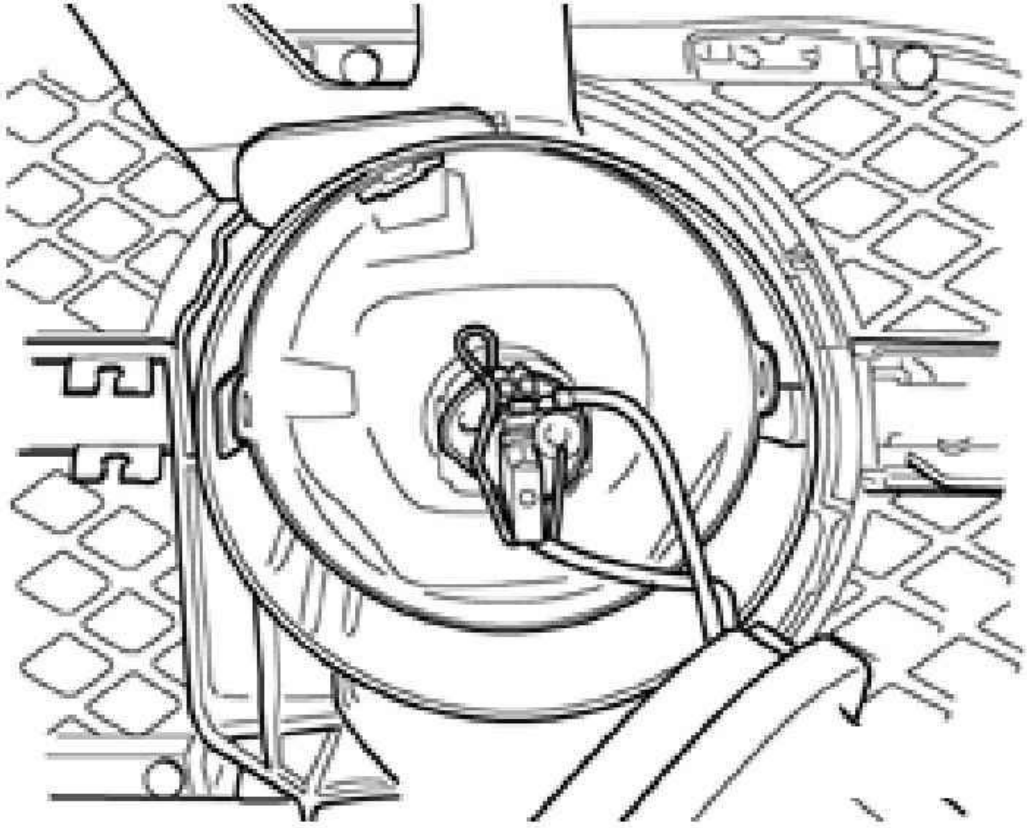


Fig. 17: Disconnecting Electrical Connection At Fog Lamp Assembly
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation, can cause the glass to cloud over.

- Insert new bulb so lugs on plate align with grooves in reflector.
- Connect electrical connection to bulb and reinstall cap, on assembly.
- Connect electrical connection to fog lamp assembly.
- Check fog lamp aim

See **FOG LAMP, ALIGNMENT** .

HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMPS

GENERAL INFORMATION

WARNING:

- **HIGH VOLTAGE!**
- **Always disconnect negative (-) battery terminal prior to servicing any parts of the HID lamp system marked with the yellow "HIGH VOLTAG!"symbol.**
- **After disconnecting battery, briefly turn headlights on and off in order to discharge any residual voltage.**
- **The physical and mechanical properties of HID bulbs are very sensitive. Internal pressure of HID glass bulb may exceed 100 bar (in operation). Bulb temperature may exceed 700 degrees Celsius.**
- **The control modules for HID lamps must never be operated (headlights turned on) without an HID lamp.**
- **HID bulbs must only be operated (headlights turned on) when installed in the headlight housing.**
- **Always wear safety glasses and gloves when removing and installing HID bulb.**
- **Never look directly at an operating HID bulb. The UV emissions of an HID bulb are approximately 2.5 times that of a comparable halogen bulb.**

ON BOARD DIAGNOSTIC (OBD), FUNCTION

The automatic vertical headlight beam adjusting control module of the HID headlight system is controlled by an internal microprocessor with On Board Diagnostic (OBD) capability. If malfunctions occur in monitored components, Diagnostic Trouble Codes (DTC) will be stored in memory.

Troubleshoot system malfunctions, code control modules or perform basic settings with OBD program. Use VAS 5051 Vehicle Diagnostic Testing and Information System or VAS 5052 Vehicle Diagnostic and Service System in mode "Guided Fault Finding".

- Enter appropriate model, equipment and model year information and press ">" to confirm.

After the DTC memory of all control modules has been checked:

- Press "Go to" button
- Select "Function / Component Selection"
- Select: "Body (Repair Group 01; 27; 50 to 97)"
- Select: "Electrical System (Repair Group 01; 27; 90 to 97)"
- Select: "01 - On Board Diagnostic (OBD) capable systems"
- Select: "Automatic vertical headlight aim control"

- Select: appropriate option
- Follow tester prompts

HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMPS, SYSTEM OVERVIEW

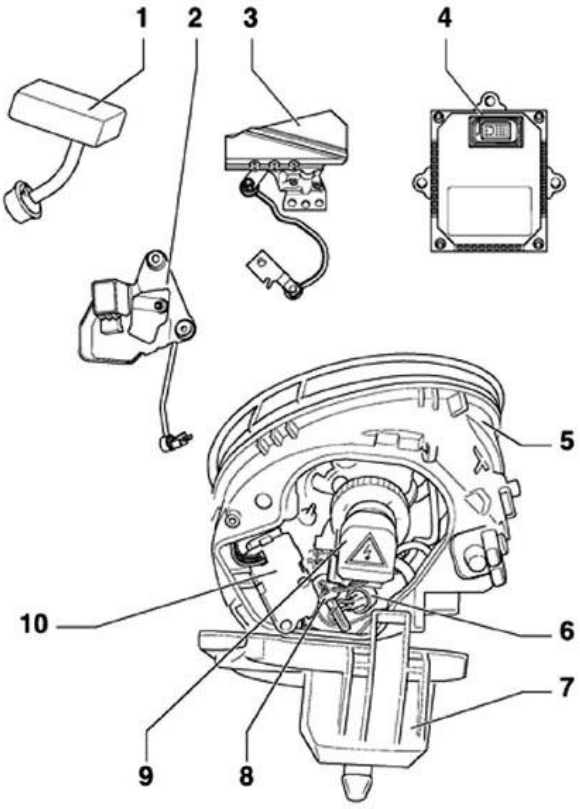
CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch off ignition and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified. See BATTERY, DISCONNECTING AND RECONNECTING .**

NOTE: The following list refers to items in Fig. 18 .

1. **Left/Right Control Module for High Intensity Gas Discharge (HID) Lamp -J343- / -J344-**
   - Integrated with headlight unit.
   - Modules cannot be replaced separately; replace complete headlight housing, See **HEADLIGHT HOUSING WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REMOVING AND INSTALLING** .
2. **Left Front Level Control System Sensor -G78-**
   - Removing and installing, See **LEFT FRONT LEVEL CONTROL SYSTEM SENSOR -G78-, REMOVING AND INSTALLING** .
   - Adjusting, See **LEFT FRONT LEVEL CONTROL SYSTEM SENSOR -G78-, ADJUSTING** .
3. **Left Rear Level Control System Sensor -G76-**
   - Removing and installing, See **LEFT REAR LEVEL CONTROL SYSTEM SENSOR -G76-, REMOVING AND INSTALLING** .
   - Checking adjustment, See **LEFT REAR LEVEL CONTROL SYSTEM SENSOR -G76-, CHECKING** .
4. **Left/Right High Intensity Gas-discharge Lamp (with range control) Control Module -J567- / -J568-**
   - -J567- (left) is "master" control module.
   - Location: left front wheel housing
   - Removing and installing, See **LEFT HIGH INTENSITY GAS-DISCHARGE LAMP (WITH RANGE CONTROL) CONTROL MODULE -J567-, REMOVING AND INSTALLING** .
   - -J568- (right) is "slave" control module
   - Location: right front/inner long member.
   - Removing and installing, See **RIGHT HIGH INTENSITY GAS-DISCHARGE LAMP (WITH RANGE CONTROL) CONTROL MODULE -J568-, REMOVING AND INSTALLING** .

5. **Headlight housing**
    - Removing and installing, See **HEADLIGHT HOUSING WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REMOVING AND INSTALLING** .
6. **Parking light bulb**
    - Halogen bulb 12 V, 6W
    - Removing and installing, See **PARKING LIGHT BULBS, REMOVING** .
7. **Sealing cap**
    - Removing and installing, See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REPLACING BULBS** .
8. **High beam bulb**
    - H7 12V, 55 W
    - Removing and installing, See **HIGH BEAM BULB, REMOVING** .
9. **High Intensity Gas Discharge (HID) lamp**
    - Used for low beam
    - Type DS2, 35W
    - Operating voltage 80V to 117V
    - Removing and installing, See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REPLACING BULBS** .
10. **Headlight beam adjusting motor -V48- / -V49-**
    - Removing and installing, See **HEADLIGHT BEAM ADJUSTING MOTOR -V48- / -V49-, REMOVING AND INSTALLING** .



1 - Left/Right Control Module for High Intensity Gas Discharge (HID) Lamp -J343- / -J344-

2 - Left Front Level Control System Sensor -G78-

3 - Left Rear Level Control System Sensor -G76-

4 - Left/Right High Intensity Gas-discharge Lamp (with range control) Control Module - J567- / -J568-

5 - Headlight housing

6 - Parking light bulb

7 - Sealing cap

8 - High beam bulb

9 - High Intensity Gas Discharge (HID) lamp

10 - Headlight beam adjusting motor - V48- / -V49-

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Fig. 18: Identifying Headlights With High Intensity Gas Discharge (Hid) Lamps
Courtesy of VOLKSWAGEN OF AMERICA, INC.

HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REPLACING BULBS

WARNING:

- **HIGH VOLTAGE!**
- **Always disconnect negative (-) battery terminal prior to servicing any parts of the HID lamp system marked with the yellow "HIGH VOLTAGE!"symbol.**
- **After disconnecting battery, briefly turn headlights on and off in order discharge any residual voltage.**
- **Internal pressure of HID glass bulb may exceed 10 bar.**
- **The physical and mechanical properties of HID bulbs are very sensitive. Always wear safety glasses when removing and installing HID bulb**

HID lamp bulb, removing

- Remove applicable headlight housing, See **HEADLIGHT HOUSING WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REMOVING AND INSTALLING** .
- Remove screw -1- and open sealing cap by releasing retaining clip -2-.
- Disengage sealing cap from mounting -3-.

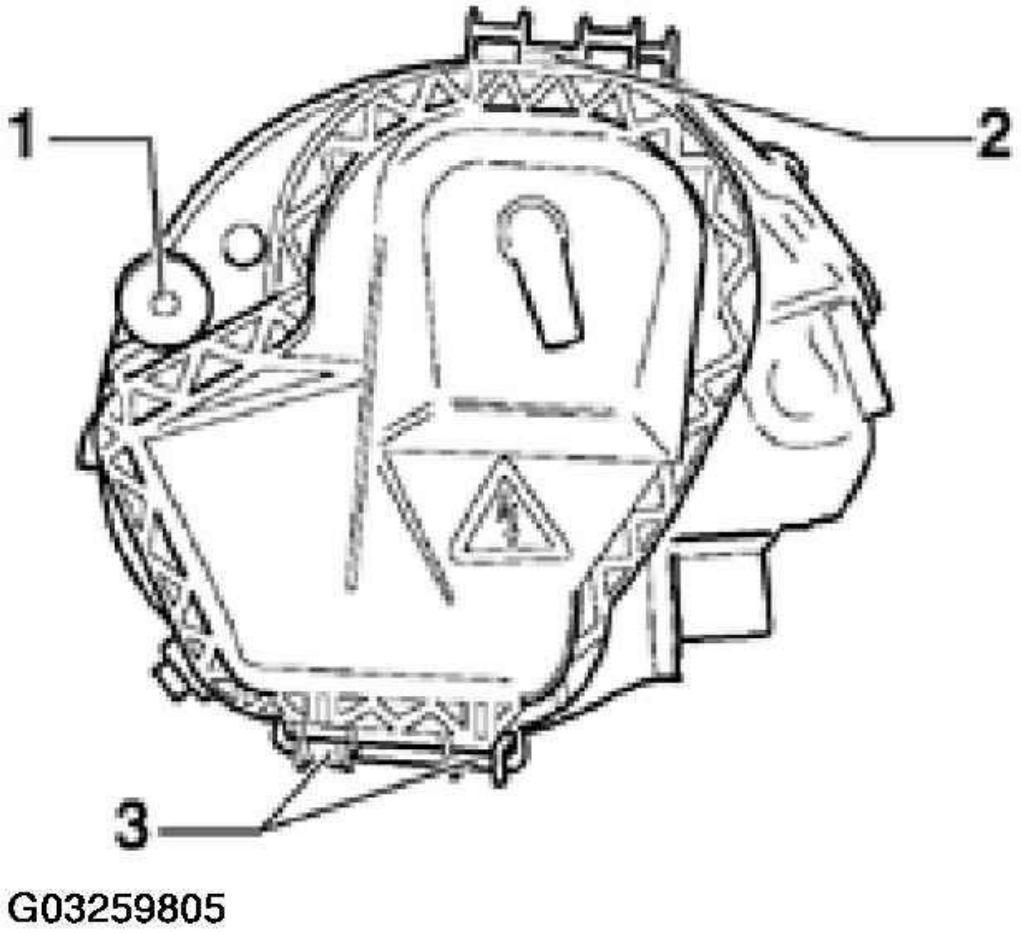


Fig. 19: Removing Screw And Opening Sealing Cap
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Release connector -1-, by turning 90° to the left -arrow- and pull off.
- Turn gas discharge bulb retaining ring -2- to the left and remove bulb.
- Carefully remove HID bulb.

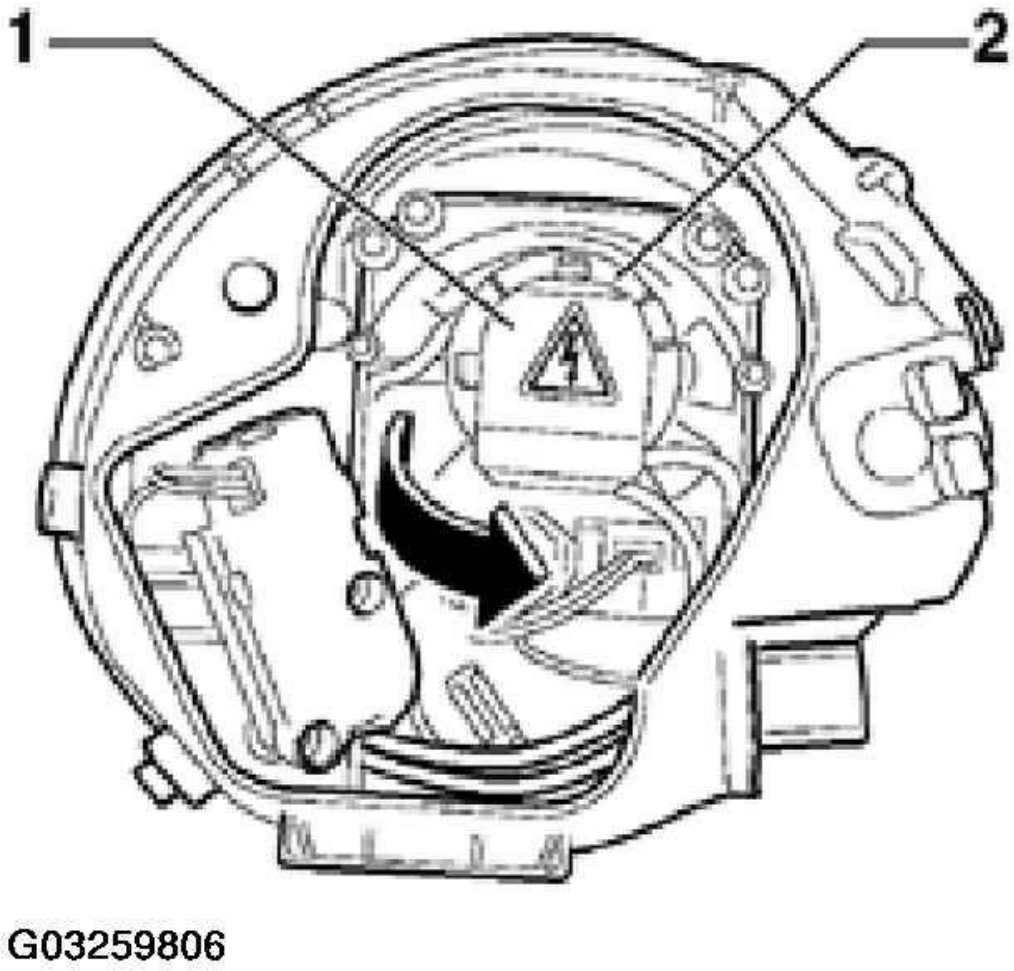


Fig. 20: Disconnecting HID Lamp Bulb Connector
Courtesy of VOLKSWAGEN OF AMERICA, INC.

HID lamp bulb, installing

CAUTION: Do not touch glass portion of bulb with bare hands. Even the smallest amount of moisture and/or contaminants from fingers that evaporates on the bulb during operation can cause the glass to cloud over.

- Insert new bulb, making sure that the bulb mounting aligns with the locating lugs in the housing.
- Position retaining ring -1- recesses -arrows-over locking tabs -2- of HID bulb -3- and secure by turning clockwise.
- Reinstall headlight housing, See **HEADLIGHT HOUSING WITH HIGH INTENSITY GAS**

DISCHARGE (HID) LAMP, REMOVING AND INSTALLING .

- Check headlight (HID lamp) function.
- Check headlight aim, See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, ADJUSTING** .

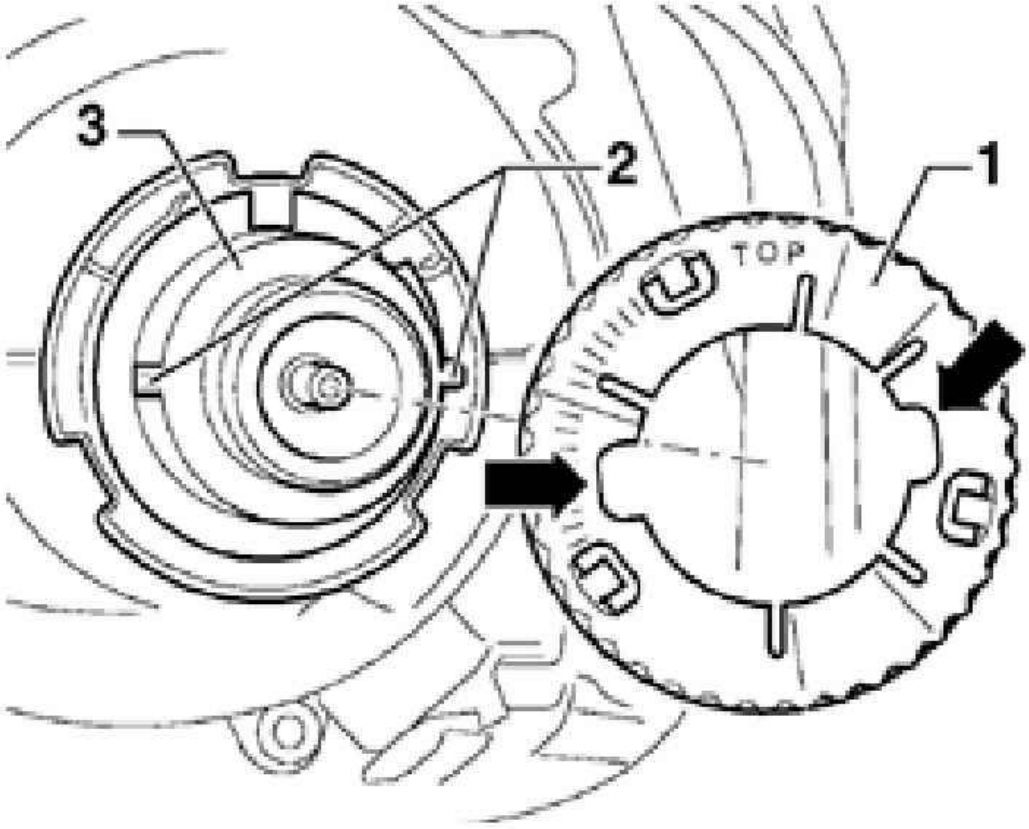


Fig. 21: Installing Retaining Ring Recesses Over Locking Tabs
Courtesy of VOLKSWAGEN OF AMERICA, INC.

High beam bulb, removing

- Remove applicable headlight housing, See **HEADLIGHT HOUSING WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REMOVING AND INSTALLING** .
- Remove sealing cap, See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REPLACING BULBS** .
- Turn lever -1- on bulb mounting to left -arrow- to release.

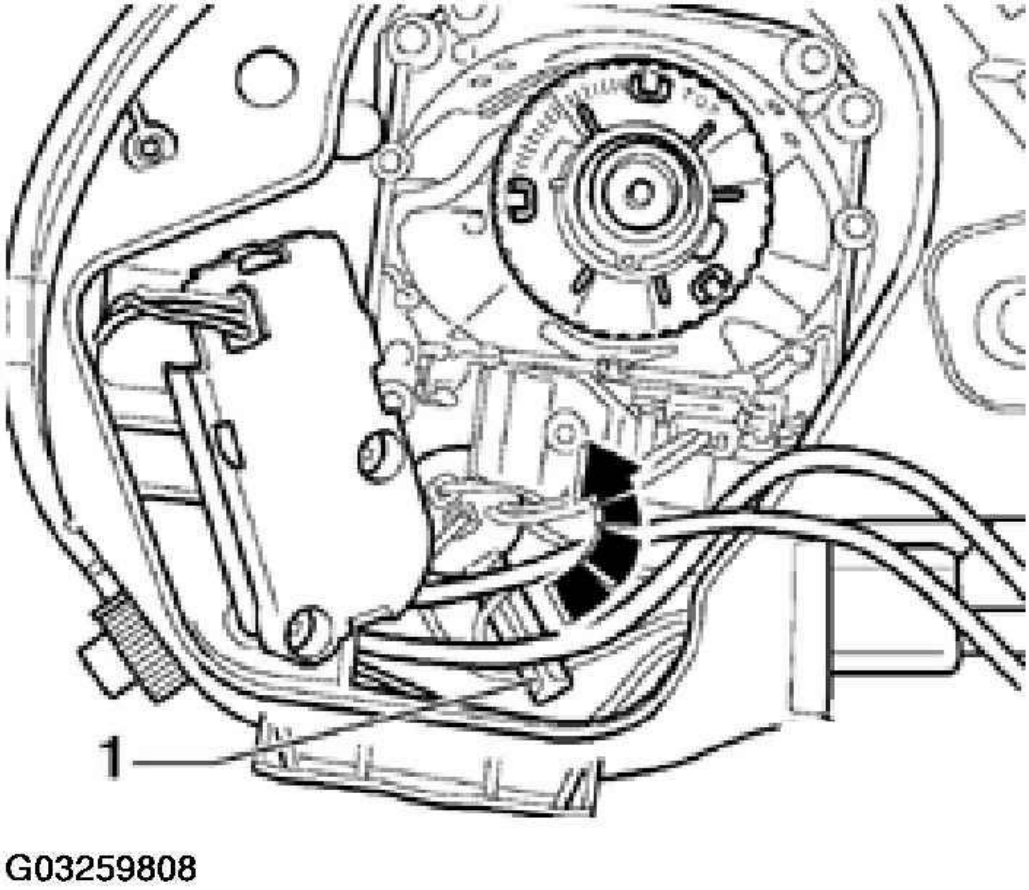


Fig. 22: Removing Turn Lever On Bulb Mounting To Left
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Pull main beam bulb with mounting out from reflector.

High beam bulb, installing

CAUTION: Do not touch glass portion of bulb with bare hands. Even the smallest amount of moisture and/or contaminants from fingers that evaporates on the bulb during operation can cause the glass to cloud over.

Installation in reverse sequence of removal.

- Check headlight (high beam bulb) function.
- Check headlight aim, See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, ADJUSTING** .

Parking light bulbs, removing

- Remove headlight housing, See **HEADLIGHT HOUSING WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REMOVING AND INSTALLING** .
- Remove sealing cap, See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REPLACING BULBS** .
- Pull parking light bulb with mounting -arrow- out from reflector.

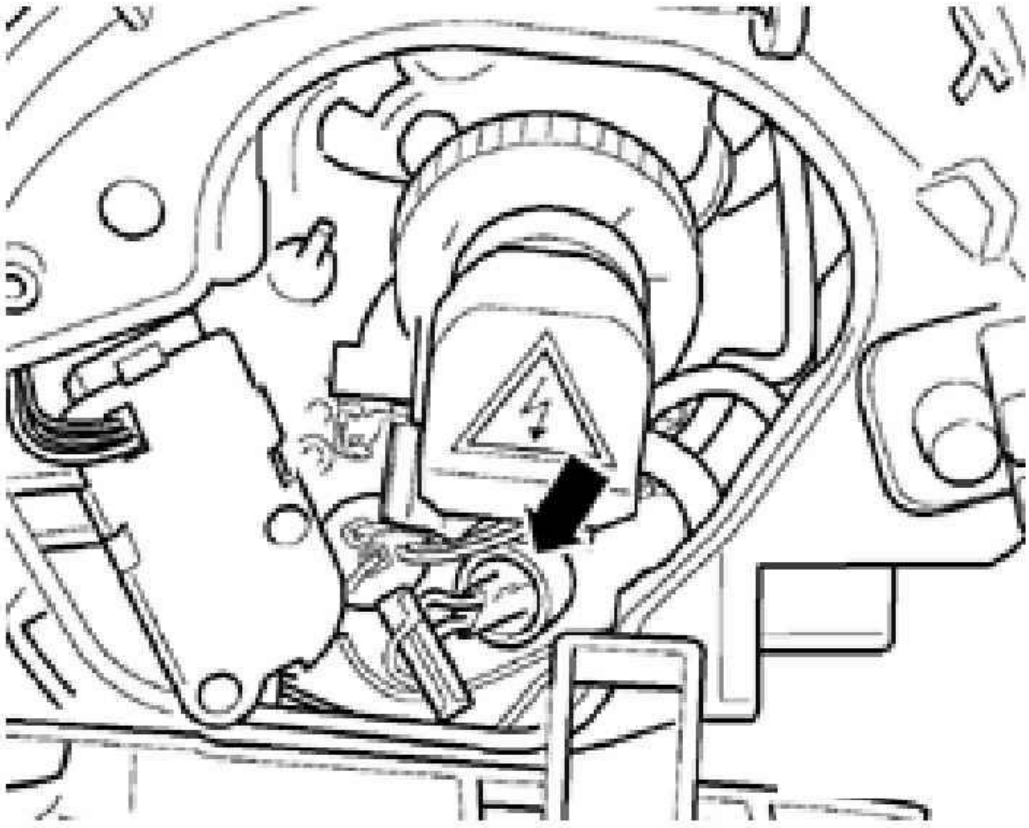


Fig. 23: Removing Parking Light Bulb With Mounting
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Parking light bulbs, installing

CAUTION: Do not touch glass portion of bulb with bare hands. Even the smallest amount of moisture and/or contaminants from fingers that evaporates on the bulb during operation can cause the glass to cloud over.

Install in reverse order of removal.

- Check parking light (bulb) function.
- Check headlight aim, See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, ADJUSTING**

HEADLIGHT HOUSING WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REMOVING AND INSTALLING

Left HID headlight, removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Disengage retainer -1- downwards and slide lever -2- upwards.
- Pull headlight housing -3- forward slightly.
- Disconnect electrical connection from headlight.

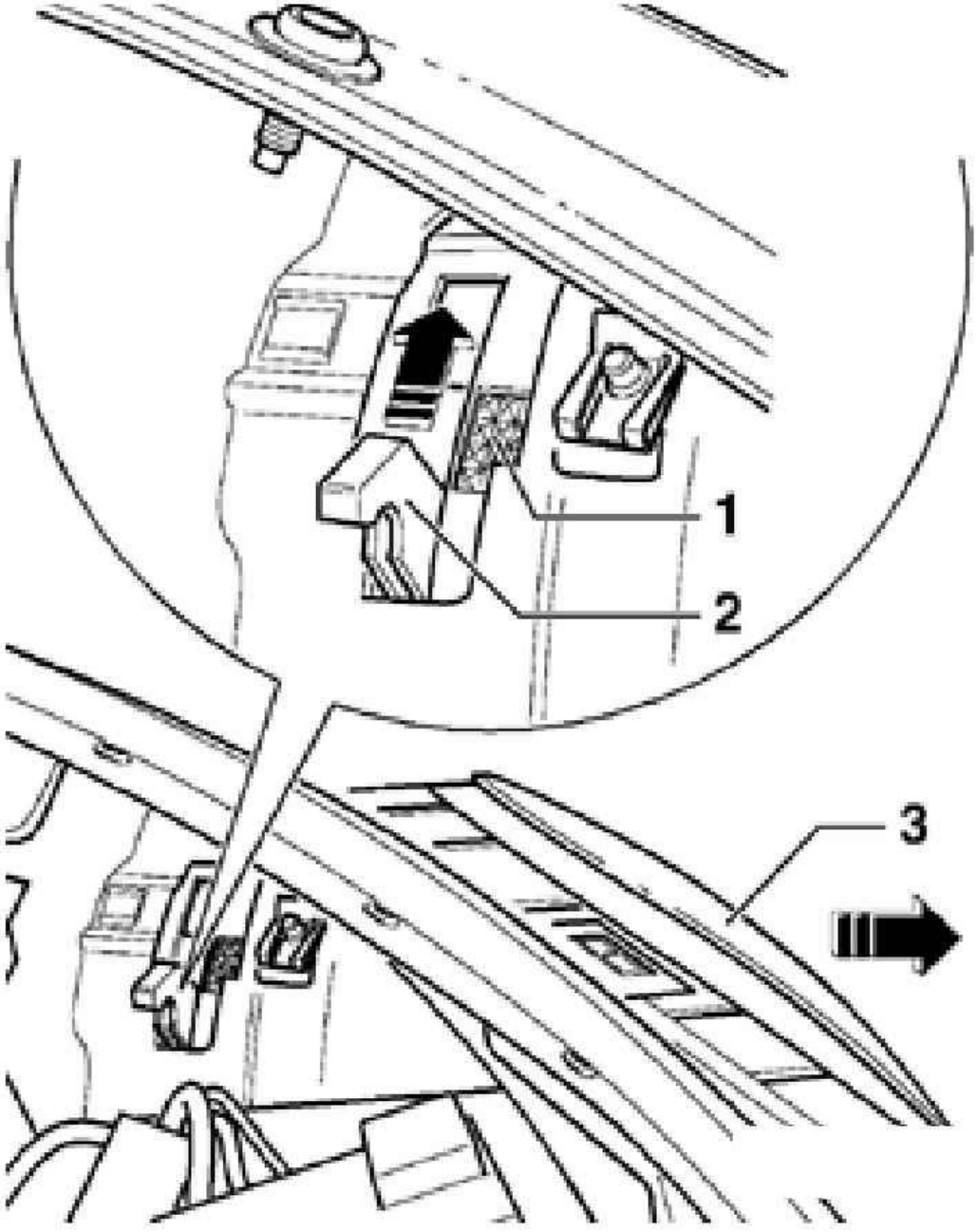


Fig. 24: Disconnecting Electrical Connection From Headlight (Left Side)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Slide headlight housing forward and out from fender opening.

Left HID headlight, installing

- Reconnect electrical connection -1- to headlight.
- Position headlight insert in guide rails -arrows- and slide unit to rear.
- Move lever in engine compartment down again to engage retainer.
- Reconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Check headlight aim. See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, ADJUSTING** .

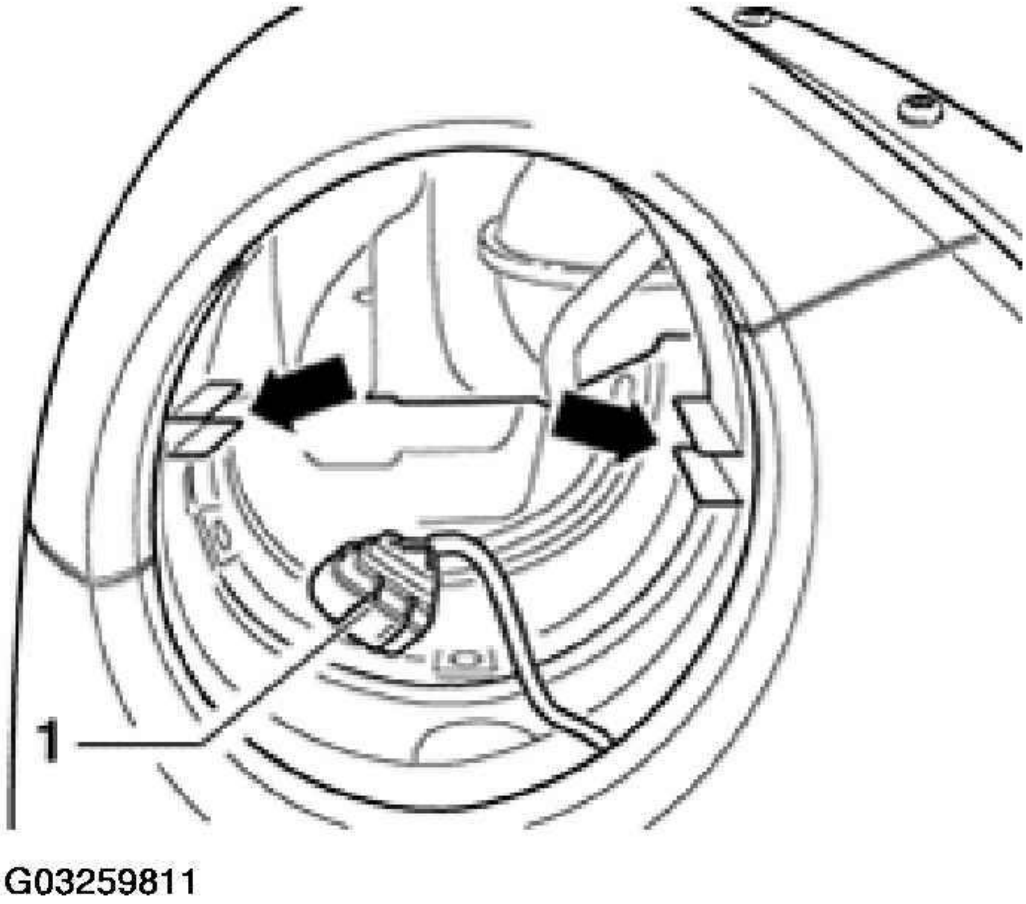


Fig. 25: Connecting Electrical Connection To Headlight
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Right HID headlight, removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Disengage retainer -1- downwards and slide lever -2- upwards.
- Pull headlight housing -3- forward slightly.
- Disconnect electrical connector from headlight.

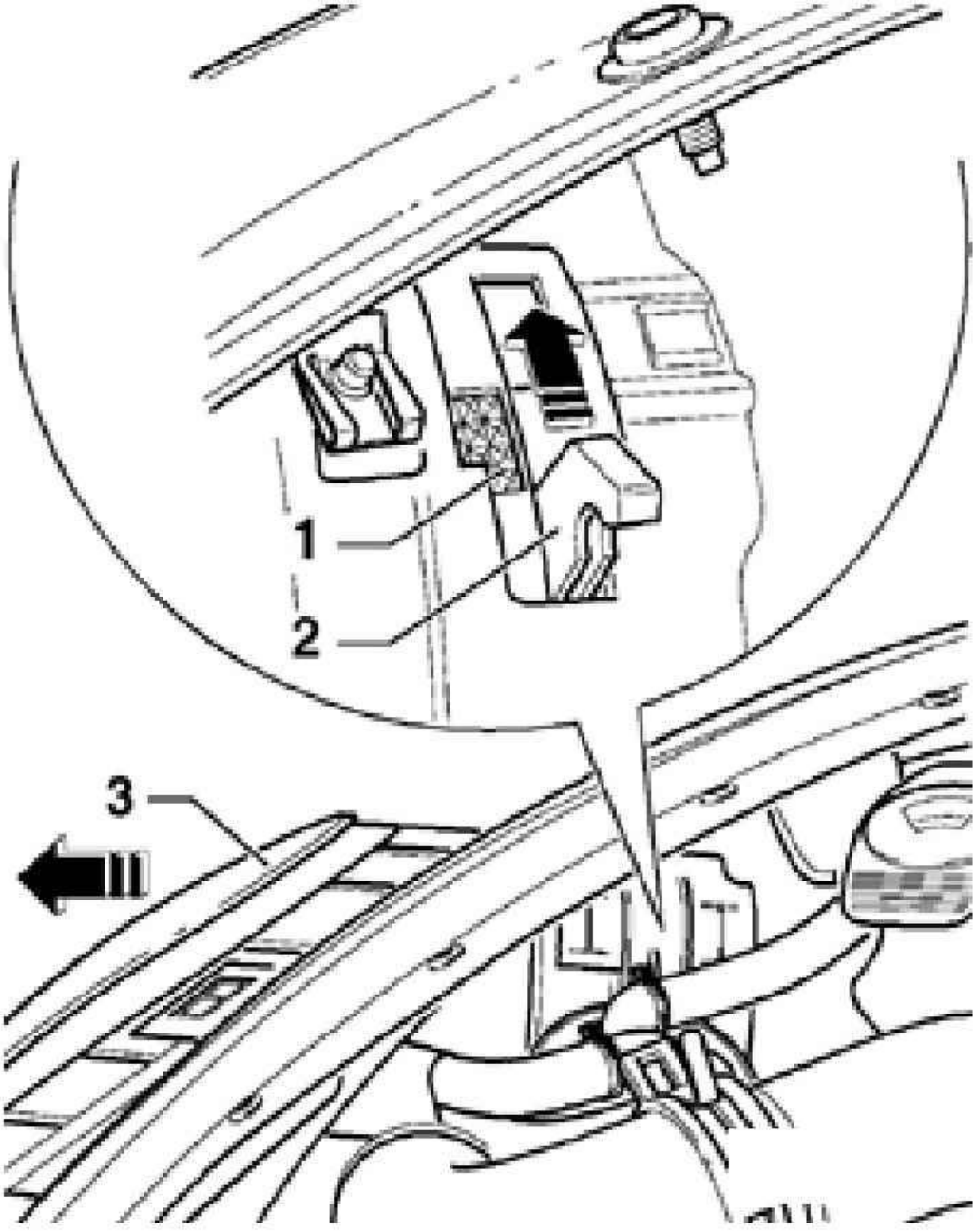


Fig. 26: Disconnecting Electrical Connector From Headlight (Right Side)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Slide headlight housing forward and out from fender opening.

Right HID headlight, installing

- Reconnect electrical connection -1- to headlight.
- Position headlight insert in guide rails -arrows- and slide unit to rear.
- Move lever in engine compartment downwards again to engage retainer.
- Reconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Checking headlight aim. See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, ADJUSTING**

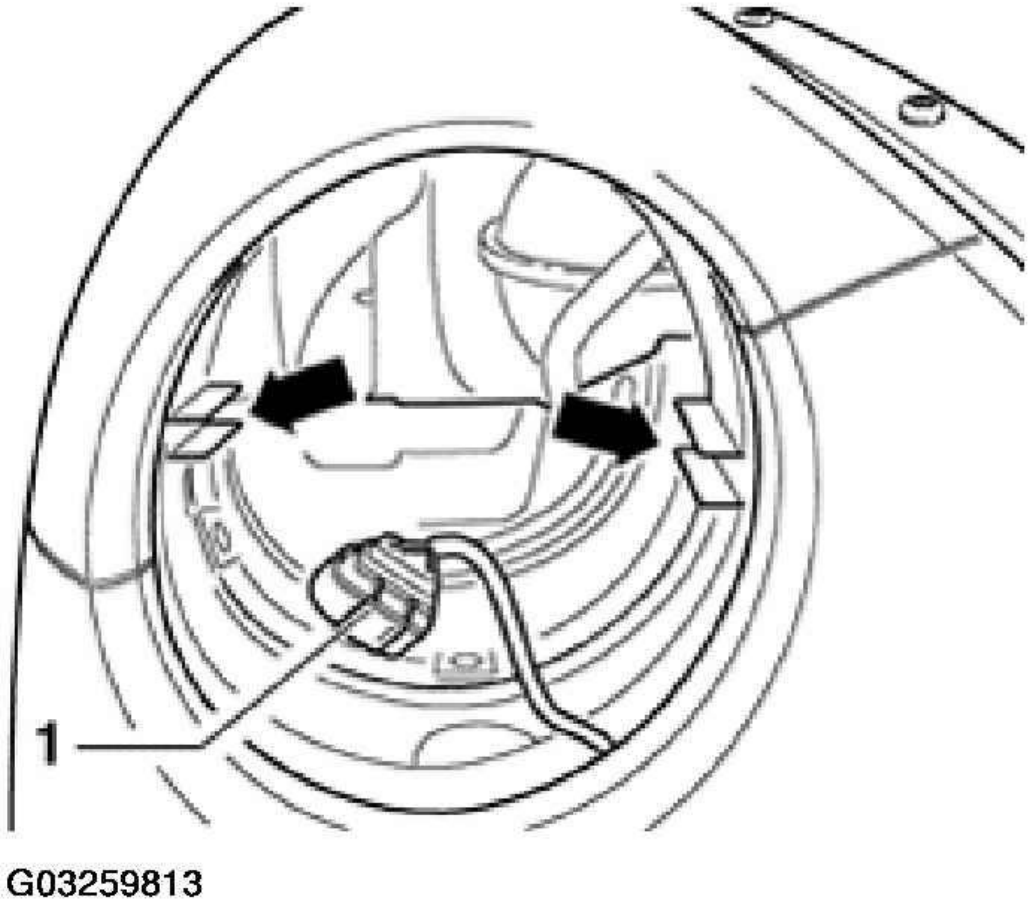


Fig. 27: Connecting Electrical Connection To Headlight
Courtesy of VOLKSWAGEN OF AMERICA, INC.

HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, ADJUSTING

NOTE:

- **Aiming must be done in conjunction with On Board Diagnostic (OBD) program "Basic Setting" (function 04). Use VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding"**
- **Always adjust lights with optical headlight aimer VAS 5107, using detailed aiming procedure and specifications**

  See HEADLIGHT ADJUSTMENT, CHECKING .

- **Low and high beams are adjusted simultaneously.**

Where applicable, also check/confirm position of driving direction selector on headlight housing. Confirm setting for the USA/CDN: "left-hand drive as follows:

Driving direction setting, checking (where applicable)

HID lamps may have a mechanism that allows beam patterns to be changed according to market. Potential glare is thus minimized.

- Remove headlight housing, See **HEADLIGHT HOUSING WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REMOVING AND INSTALLING** .
- Remove sealing cap. See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REPLACING BULBS** .
- Confirm selector -1- to be in lower setting -down arrow-.
  - Selector up -A-: right-hand drive (e.g.: Great Britain - Australia etc.)
  - Selector down -B-: left-hand drive (e.g.: USA -Canada - Europe etc.)

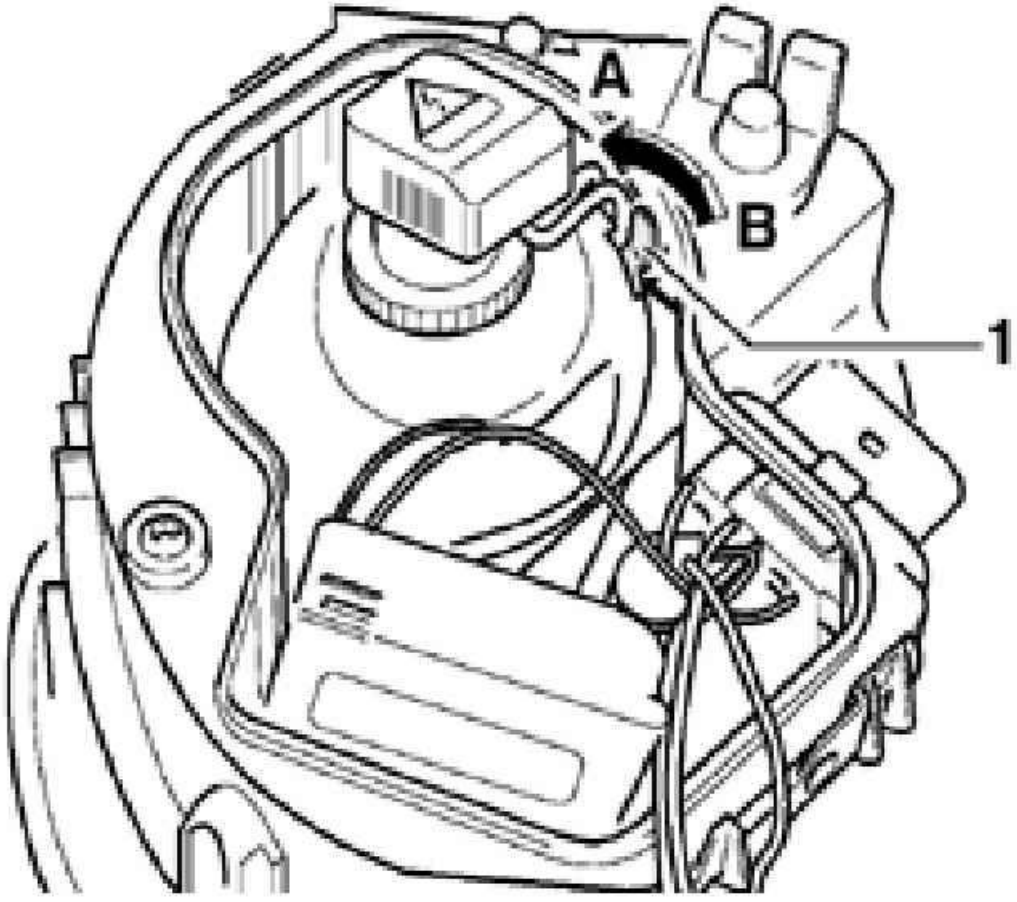


Fig. 28: Checking Driving Direction Setting
Courtesy of VOLKSWAGEN OF AMERICA, INC.

LEFT HIGH INTENSITY GAS-DISCHARGE LAMP (WITH RANGE CONTROL) CONTROL MODULE -J567-, REMOVING AND INSTALLING

WARNING:

- **HIGH VOLTAGE!**
- **Always disconnect negative (-) battery terminal prior to servicing any parts of the HID lamp system marked with the yellow "HIGH VOLTAGE!"symbol.**
- **After disconnecting battery, briefly turn headlights on and off in order discharge any residual voltage.**

The (master) control module is located in the left front wheel housing.

Removing

- Remove left front wheel housing liner. See **FRONT WHEEL HOUSING LINER, ASSEMBLY OVERVIEW** .
- Remove nuts/bolts -1- for control module.
- Disconnect electrical connection -2-.

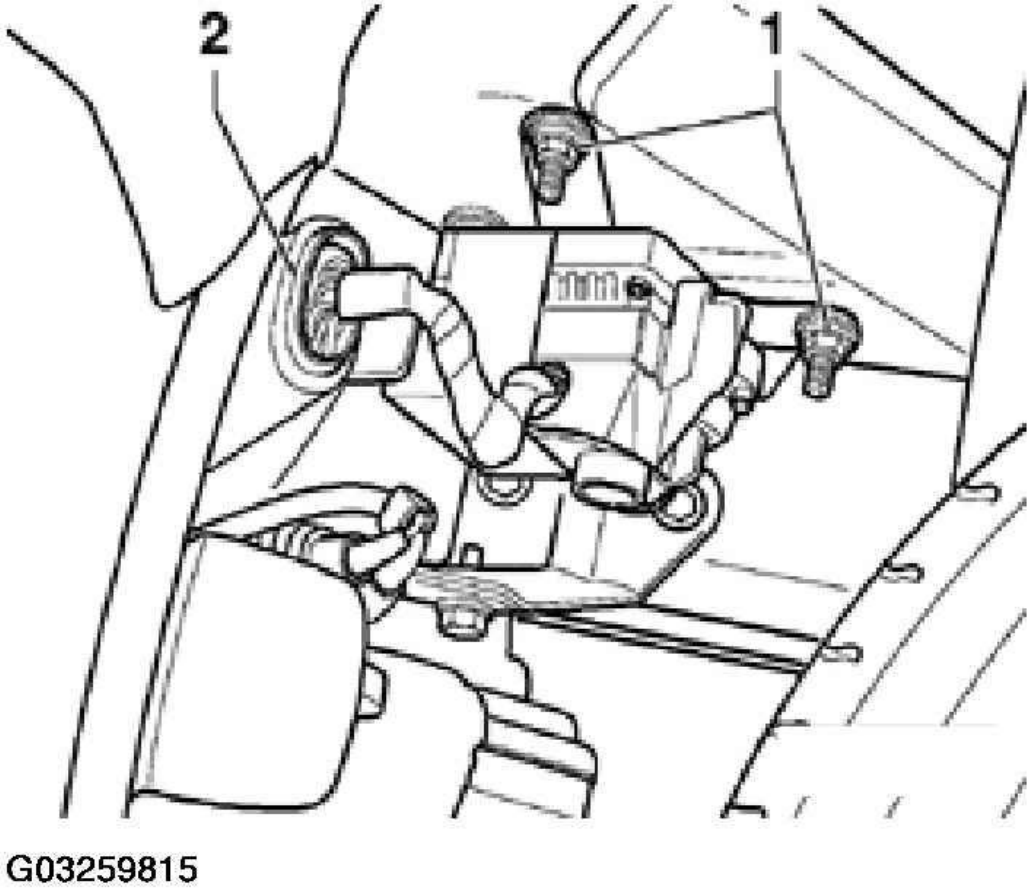


Fig. 29: Locating Nuts/Bolts For Left High Intensity Gas-discharge Lamp (With Range Control) Control Module
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

Installation in reverse sequence of removal.

- Check headlight function.
- Code control module (function 07) using On Board Diagnostic program. See **ON BOARD DIAGNOSTIC (OBD), FUNCTION** .
- Perform headlight basic setting (function 04) using On Board Diagnostic program. See **ON BOARD DIAGNOSTIC (OBD), FUNCTION** .

RIGHT HIGH INTENSITY GAS-DISCHARGE LAMP (WITH RANGE CONTROL) CONTROL MODULE -J568-, REMOVING AND INSTALLING

WARNING:

- **HIGH VOLTAGE!**
- **Always disconnect negative (-) battery terminal prior to servicing any parts of the HID lamp system marked with the yellow "HIGH VOLTAGE!"symbol.**
- **After disconnecting battery, briefly turn headlights on and off in order discharge any residual voltage.**

The (slave) control module is located on the right/front inner long member.

Removing

- Remove front bumper cover.

  See **BUMPERS** .

- Remove bolts -arrows- on module retainer.

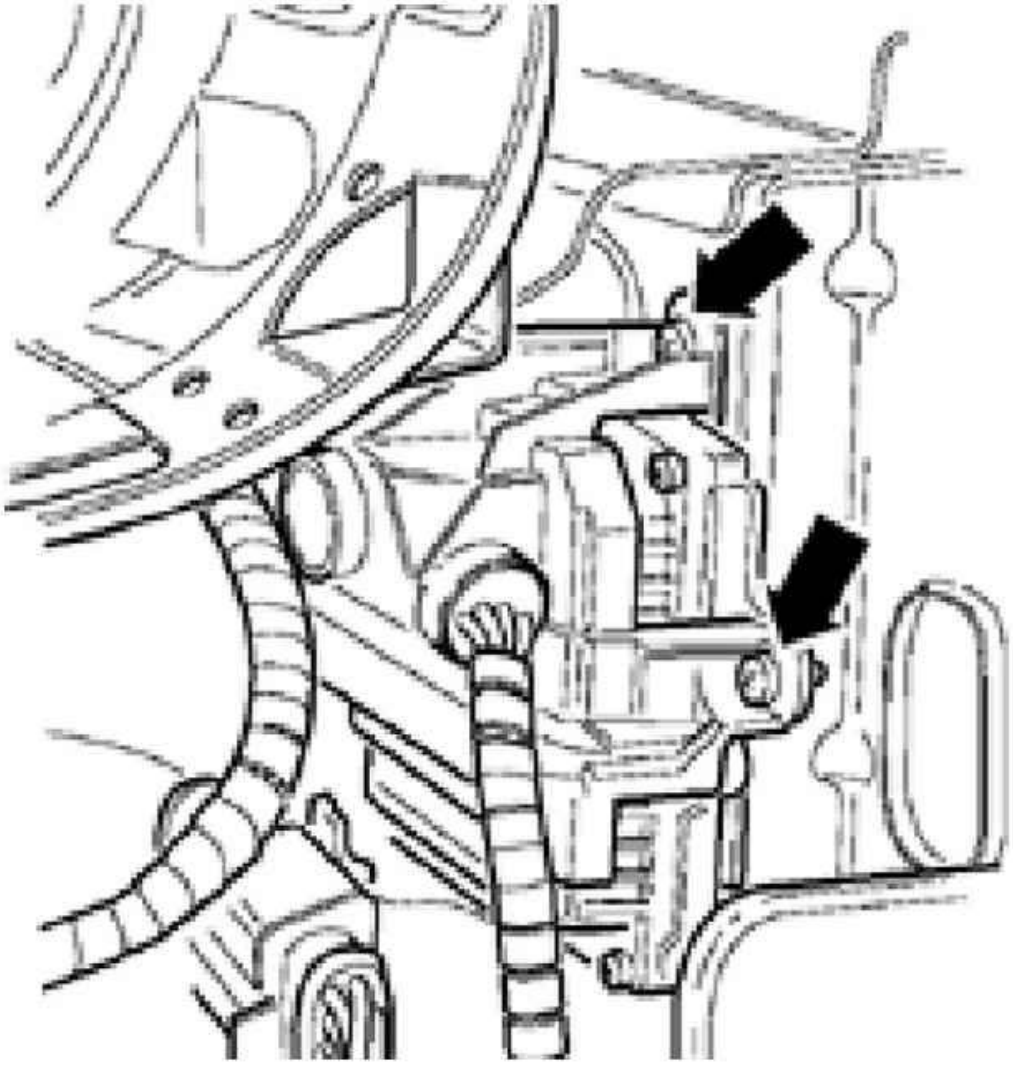


Fig. 30: Right High Intensity Gas-discharge Lamp (With Range Control) Control Module
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove retainer and module together.
- Disconnect electrical connection from module.

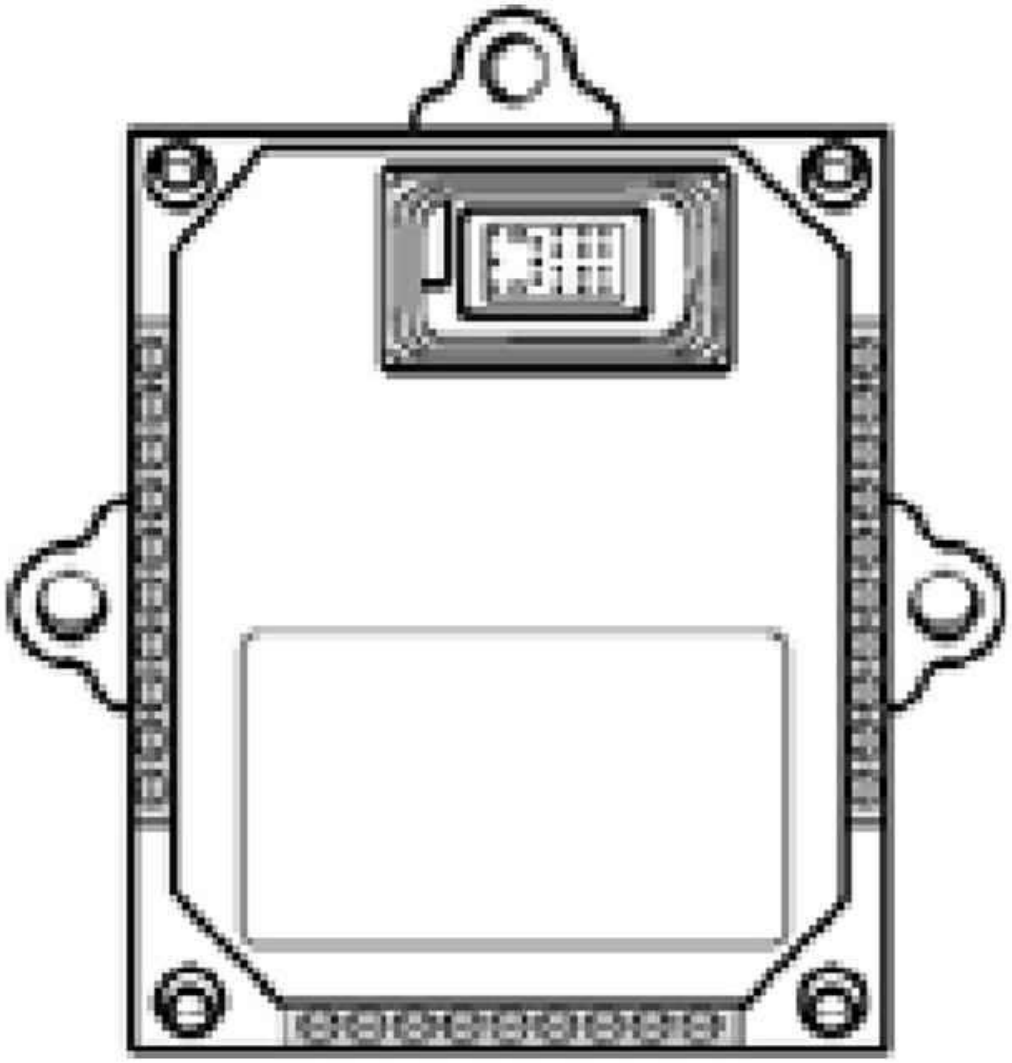


Fig. 31: Removing Module Screws To Separate Module From Retainer
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove screws and separate module from retainer.

Installing

Installation in reverse sequence of removal.

LEFT FRONT LEVEL CONTROL SYSTEM SENSOR -G78-, REMOVING AND INSTALLING

Removing

- Turn steering to full left lock.
- Remove nuts -arrows-.

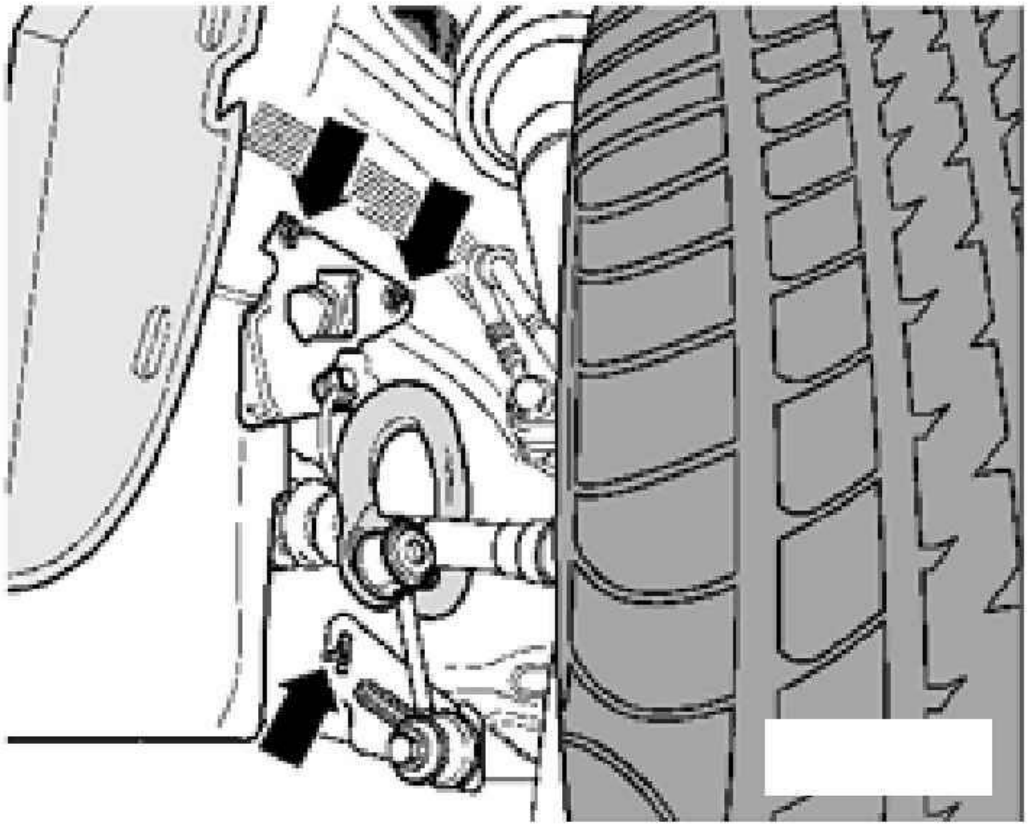


Fig. 32: Removing Left Front Level Control System Sensor Nuts
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove sensor with retainer.
- Disconnect electrical connection.

Installing

Installation in reverse sequence of removal.

- Adjust level sensor, See **LEFT FRONT LEVEL CONTROL SYSTEM SENSOR -G78-, ADJUSTING** .

LEFT FRONT LEVEL CONTROL SYSTEM SENSOR -G78-, ADJUSTING

Special tool, testers, and auxiliary items needed

- VAG 1551/1552 Scan Tool (ST) or VAS 5051 Vehicle Diagnostic Testing and Information System tester.
- VAG 1551/3B Adapter Cable

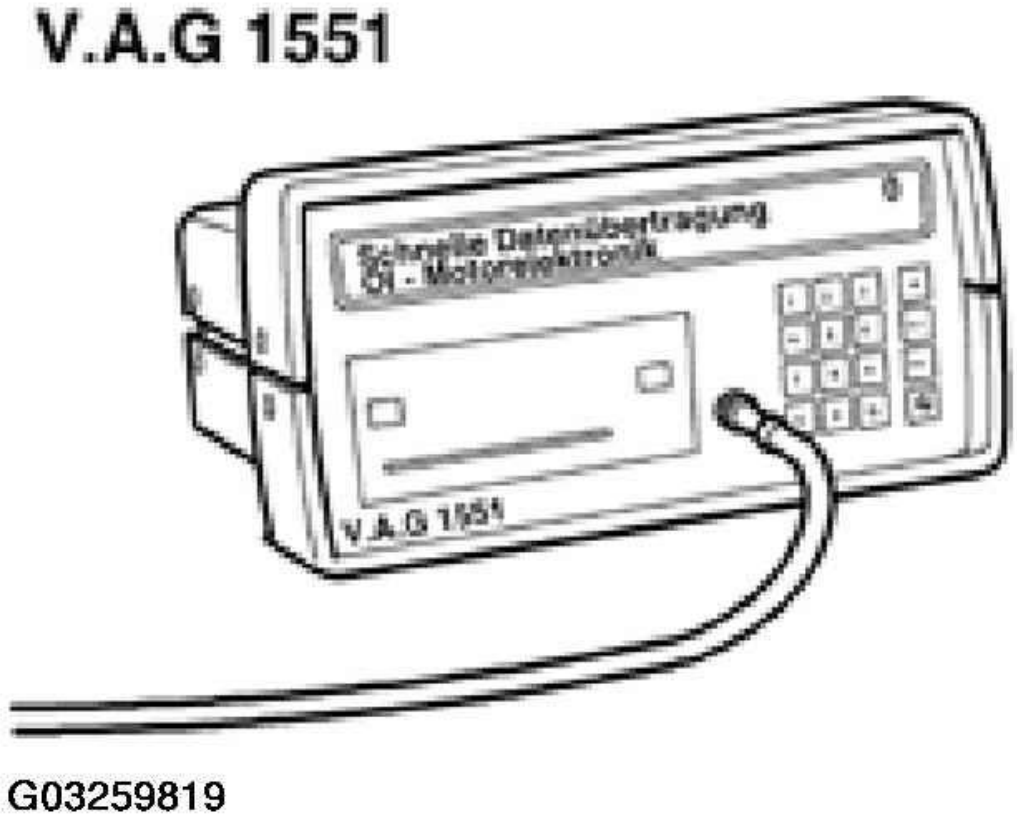


Fig. 33: Identifying Vag 1551/1552 Scan Tool
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Prerequisites

- Vehicle must be standing on all four wheels on a flat level surface.
- Handbrake lever must be in off position and a drive gear must not be selected.

- Steering must be in straight-ahead position.
- Vehicle must be unoccupied and not loaded.
- Vehicle must not be moved during basic settings process (i.e.: opening and closing of doors, people leaning on vehicle, people entering vehicle is not permitted).
- If vehicle was raised using a lifting platform/hoist or a vehicle/workshop jack, then it must be rolled back and forth several times so that the springs etc. settle, before starting adjustments.

VAS 5051 Vehicle Diagnostic Testing and Information System or VAS 5052 Vehicle Diagnostic and Service System, selecting functions

See **ON BOARD DIAGNOSTIC (OBD), FUNCTION** .

VAG 1551/1552 Scan Tool (ST), connecting and selecting functions (function 01)

Prerequisites:

- All fuses OK., according to wiring diagram
- Voltage supply OK. (minimum 9.0 V).
    - Connect Scan Tool (ST) using cable VAG 1551/3B.

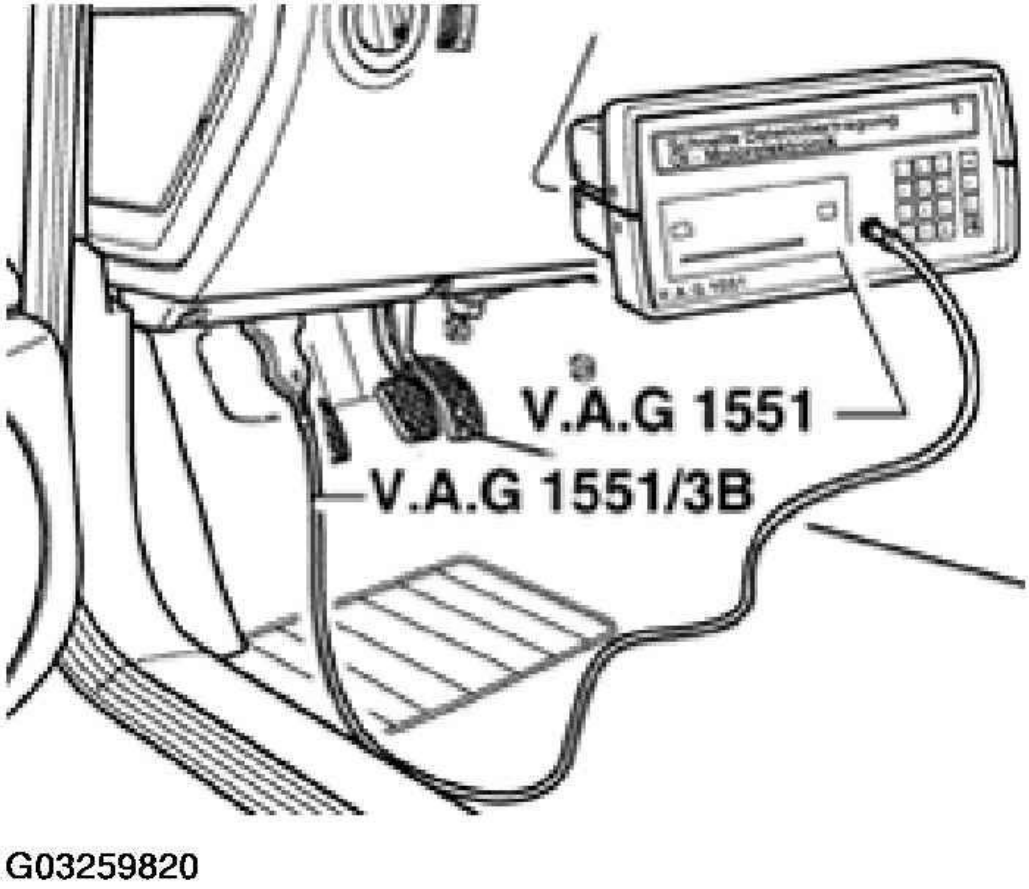


Fig. 34: Connecting VAG 1551/1552 Scan Tool
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

* Appears alternately

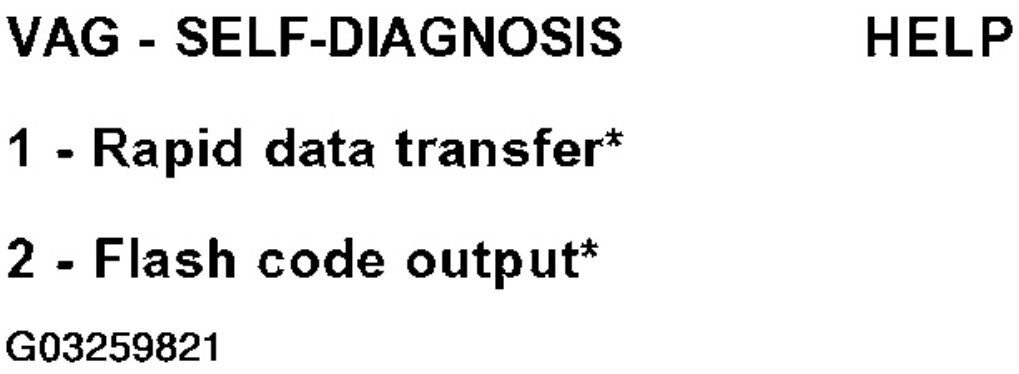


Fig. 35: VAG 1551/1552 Scan Tool Display - Connecting VAG 1551/1552 Scan Tool (1 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE:

- **If display remains blank, check VAG 1551 voltage supply according to wiring diagram.**

  NOTE: See SYSTEM WIRING DIAGRAM article.

- **Additional operating instructions can be called up with the scan tool HELP key.**
- **The --> key advances the program sequence.**
- **In operating mode 1 "Rapid data transfer" function 00 "Automatic test sequence" can be carried out. The DTC memory of all vehicle control units is checked automatically with function 00..**

- Switch ignition on.
- Switch printer on with the Print key (warning lamp in the key will light up).
- Press key 1 for "Rapid data transfer" operating mode.

Indicated on display:

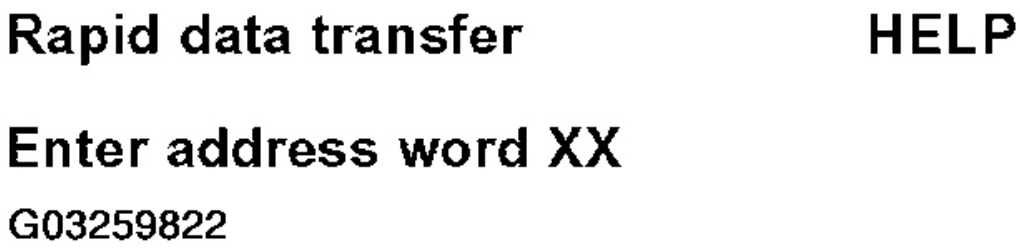


Fig. 36: VAG 1551/1552 Scan Tool Display - Connecting VAG 1551/1552 Scan Tool (2 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press keys -2- and -9- to select "Light control, left" address word "29".

Indicated on display:

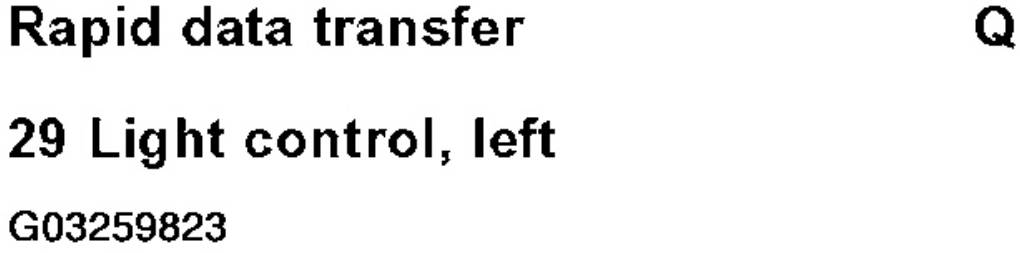


Fig. 37: VAG 1551/1552 Scan Tool Display - Connecting VAG 1551/1552 Scan Tool (3 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press -Q- button to confirm input.

Indicated on display:

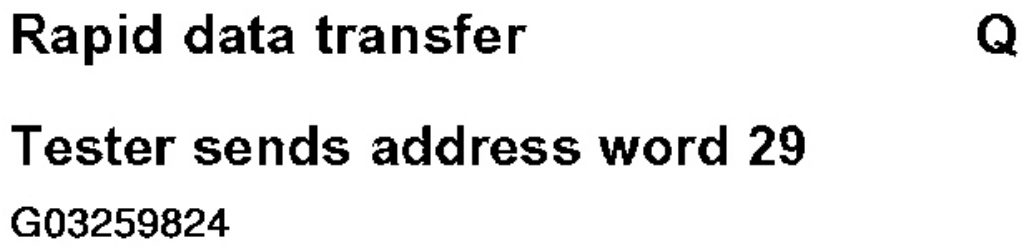


Fig. 38: VAG 1551/1552 Scan Tool Display - Connecting VAG 1551/1552 Scan Tool (4 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Control module version, checking

Indicated on display

Upper line:

- Part No. of control module (Part and version numbers illustrated here are examples only.)
- System designation (headlight range control)
- Version number (Part and version numbers illustrated here are examples only.)

Bottom line:

- Coding number (Dependent on type of drive.)
- Dealership number
- Press --> key.

Indicated on display:

Fig. 39: VAG 1551/1552 Scan Tool Display - Connecting VAG 1551/1552 Scan Tool (5 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press keys -0- and -8- to select "Read measuring value block" address word 08.

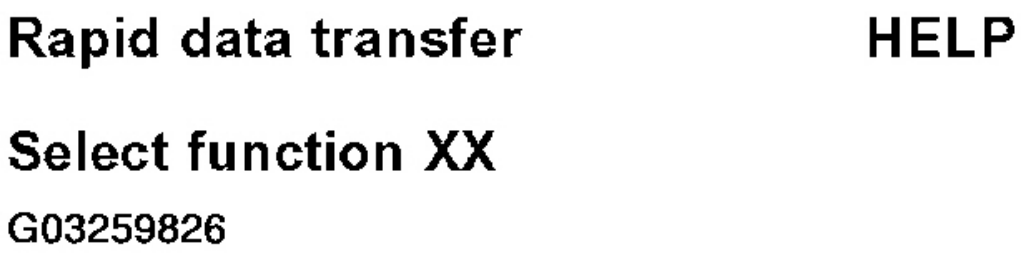


Fig. 40: VAG 1551/1552 Scan Tool Display - Connecting VAG 1551/1552 Scan Tool (6 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

- Press -Q- button to confirm input.

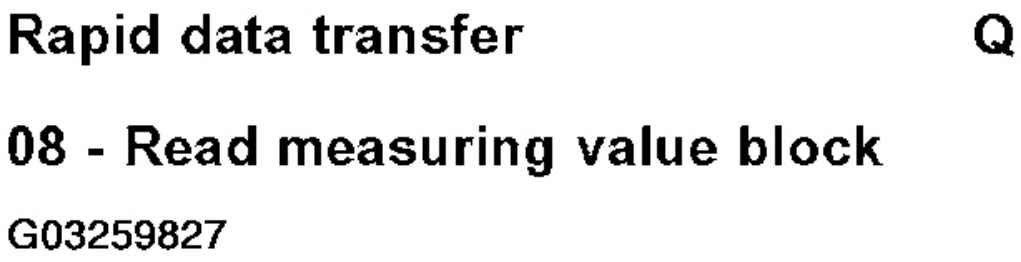


Fig. 41: VAG 1551/1552 Scan Tool Display - Connecting VAG 1551/1552 Scan Tool (7 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display.

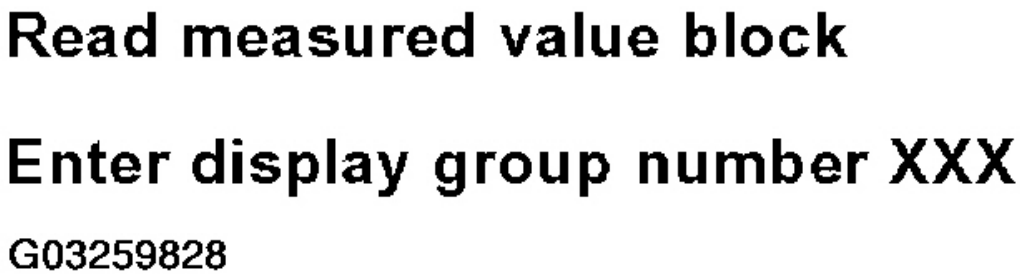


Fig. 42: VAG 1551/1552 Scan Tool Display - Connecting VAG 1551/1552 Scan Tool (8 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press key 0 twice and press key 2 once to select display group number 002.
- Press -Q- button to confirm input.

Indicated on display.

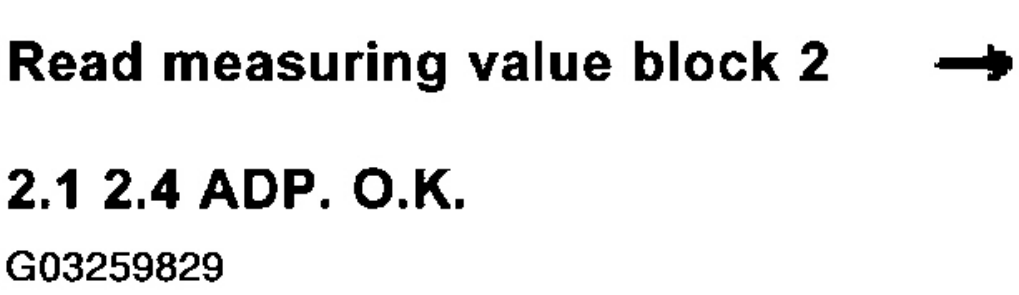


Fig. 43: VAG 1551/1552 Scan Tool Display - Connecting VAG 1551/1552 Scan Tool (9 Of 9)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Loosen lower securing bolt -arrow- on coupling rod of front axle.
- Move coupling rod within elongated hole until specification of 1.0 to 2.0 Volt is displayed in display zone 1 of the Read measuring value block. Optimum specification = 1.0 Volt (if possible).
- Tighten securing bolt. When doing this ensure voltage remains as close to optimum tolerance of 1.0 Volt as possible.

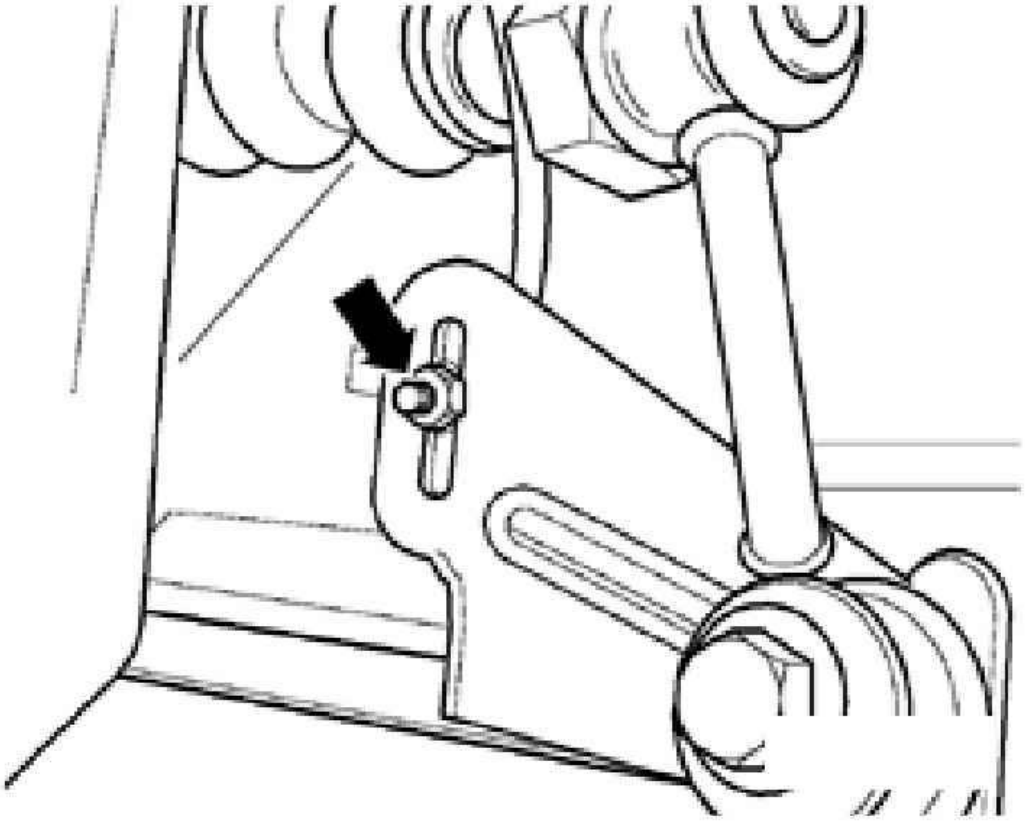


Fig. 44: Tightening Lower Securing Bolt
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display after completion of adjustments.

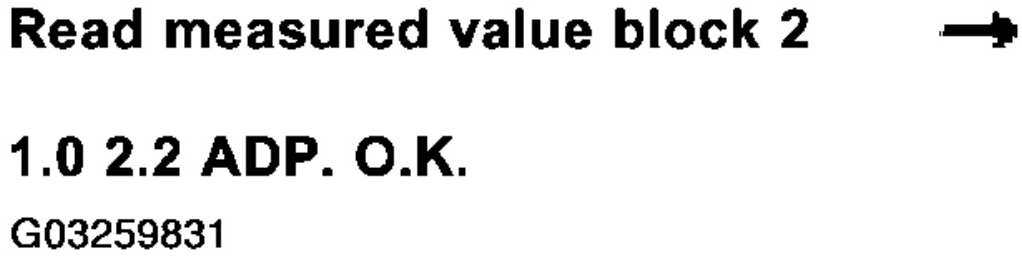


Fig. 45: VAG 1551/1552 Scan Tool Display - Read Measuring Value Block
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press --> key.

Indicated on display.

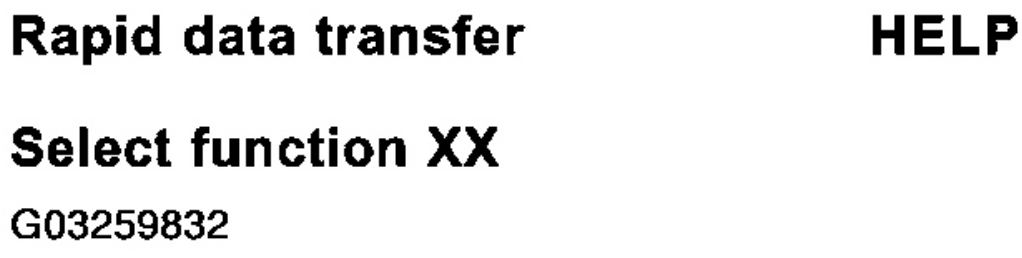


Fig. 46: VAG 1551/1552 Scan Tool Display - Select Function XX
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press keys 0 and 6 to select "End output" function 06.

Indicated on display.

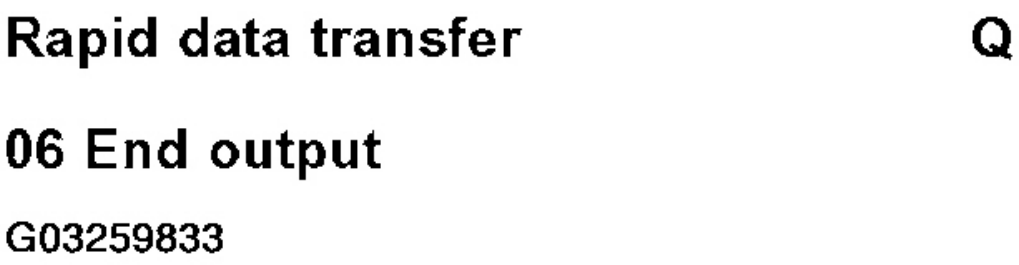


Fig. 47: VAG 1551/1552 Scan Tool Display - End Output
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press -Q- button to confirm input.

Indicated on display.

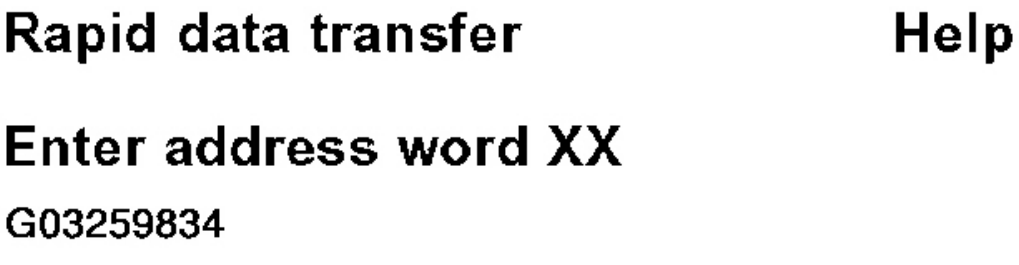


Fig. 48: VAG 1551/1552 Scan Tool Display - Enter Address Word XX
Courtesy of VOLKSWAGEN OF AMERICA, INC.

After completing the mechanical adjustment of coupling rod, the related electrical components must adjusted to the revised settings. Perform basic settings of the automatic headlight range control to adjust to the revised settings.

See **On Board Diagnostic (OBD), function** .

LEFT REAR LEVEL CONTROL SYSTEM SENSOR -G76-, REMOVING AND INSTALLING

Removing

- Remove nuts -arrows-.

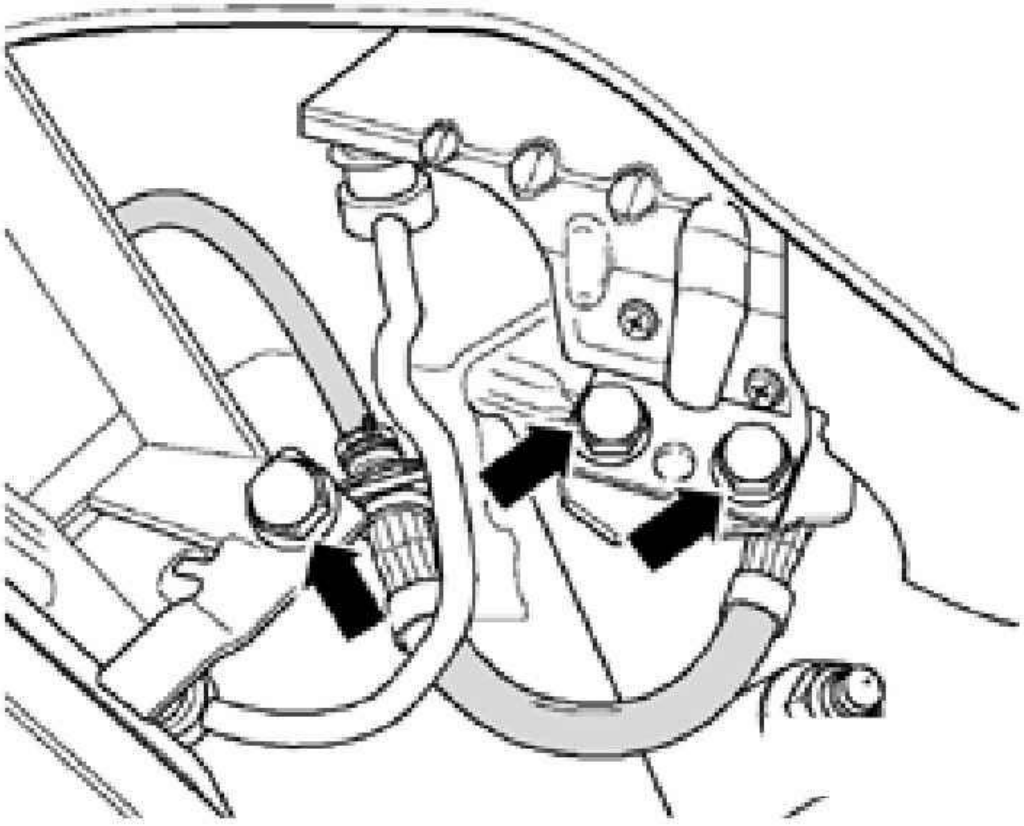


Fig. 49: Removing Left Rear Level Control System Sensor Nuts
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove sensor with retainer.
- Disconnect electrical connections.

Installing

Installation in reverse sequence of removal.

When installing, ensure coupling rod angle bracket on rear axle is seated correctly.

NOTE: The rear level control system sensor is not externally adjustable. However, it

must be checked after installation is complete.

- Check rear level sensor adjustment, See **LEFT REAR LEVEL CONTROL SYSTEM SENSOR -G76-, CHECKING** .

LEFT REAR LEVEL CONTROL SYSTEM SENSOR -G76-, CHECKING

NOTE: The rear level control system sensor is not externally adjustable. However, it must be checked after installation is complete,

Special tool, testers, and auxiliary items needed

- VAG 1551/1552 Scan Tool (ST) or VAS 5051 Vehicle Diagnostic Testing and Information System tester.
- VAG 1551/3B Adapter Cable

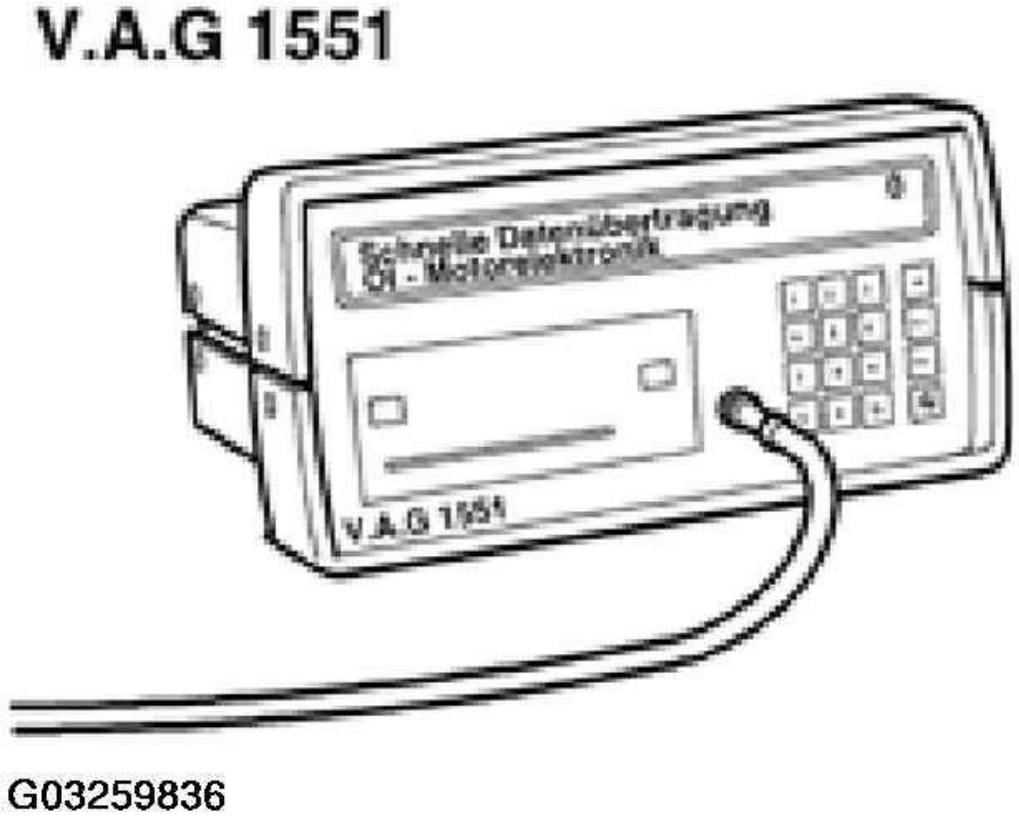


Fig. 50: Identifying VAG 1551/1552 Scan Tool

Courtesy of VOLKSWAGEN OF AMERICA, INC.

Prerequisites

- Vehicle must be standing on all four wheels on a flat level surface.
- Handbrake lever must be in off position and a drive gear must not be selected.
- Steering must be in straight-ahead position.
- Vehicle must be unoccupied and not loaded.
- Vehicle must not be moved during basic settings process (i.e.: opening and closing of doors, people leaning on vehicle, people entering vehicle is not permitted).
- If vehicle was raised using a lifting platform/hoist or a vehicle/workshop jack, then it must be rolled back and forth several times so that the springs etc. settle, before starting adjustments.

VAS 5051 Vehicle Diagnostic Testing and Information System or VAS 5052 Vehicle Diagnostic and Service System, selecting functions

See **ON BOARD DIAGNOSTIC (OBD), FUNCTION** .

VAG 1551/1552 Scan Tool (ST), connecting and selecting functions (function 01)

Prerequisites:

- All fuses OK., according to wiring diagram
- Voltage supply OK. (minimum 9.0 V).
    - Connect Scan Tool (ST) using cable VAG 1551/3B.

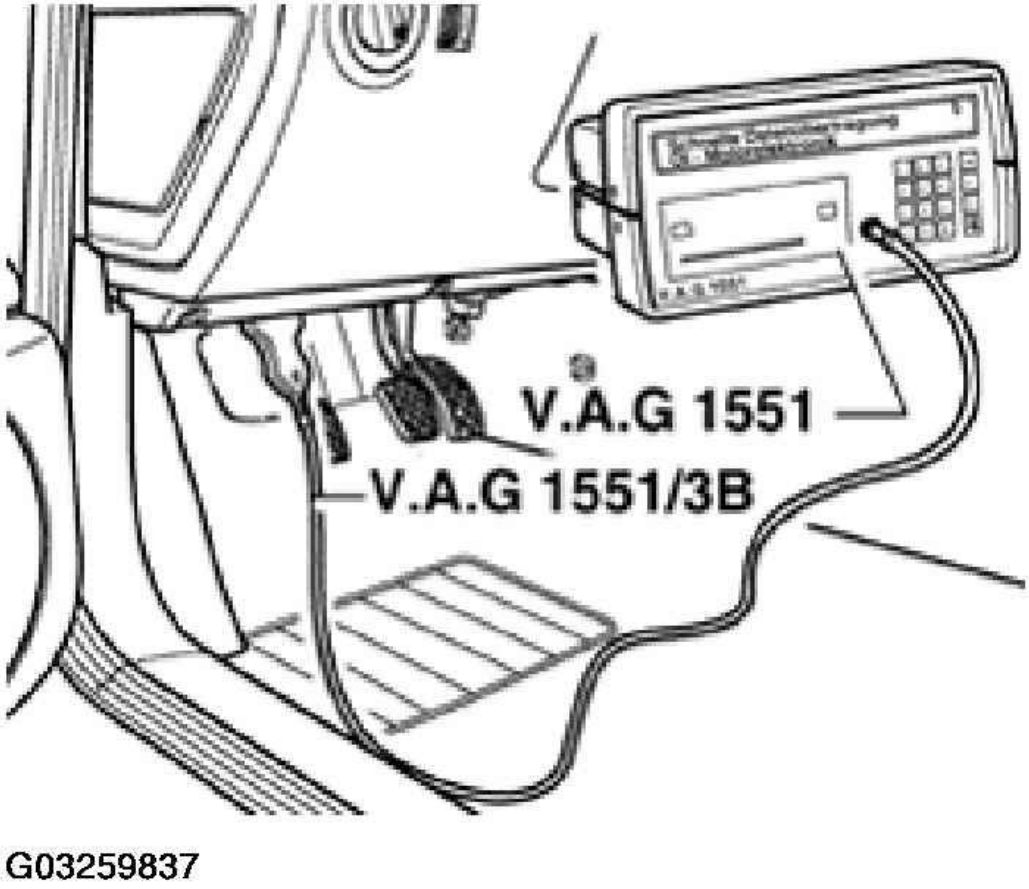


Fig. 51: Connecting VAG 1551 Scan Tool
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display:

Fig. 52: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (1 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

* Appears alternately

NOTE:

- **If display remains blank, check VAG 1551 voltage supply according to wiring diagram.**

  See SYSTEM WIRING DIAGRAM article.

- **Additional operating instructions can be called up with the scan tool HELP key.**
- **The --> key advances the program sequence.**
- **In operating mode 1 "Rapid data transfer" function 00 "Automatic test sequence" can be carried out. The DTC memory of all vehicle control units is checked automatically with function 00.**

- Switch ignition on.
- Switch printer on with the Print key (warning lamp in the key will light up).
- Press key 1 for "Rapid data transfer" operating mode.

Indicated on display:

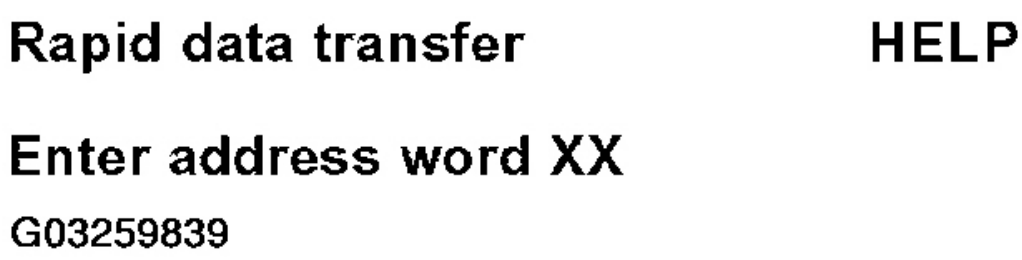


Fig. 53: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (2 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press keys -2- and -9- to select "Light control, left" address word "29".

Indicated on display:

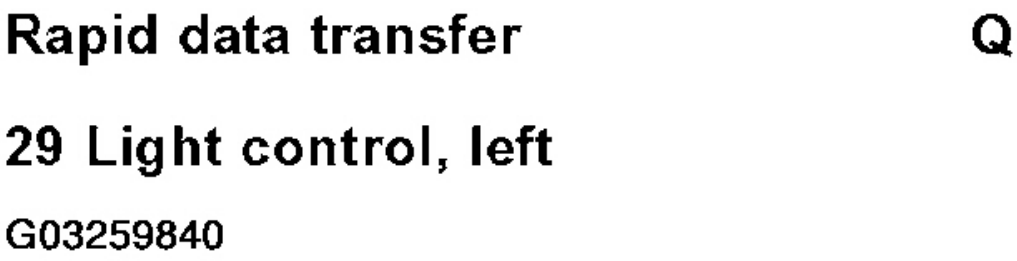


Fig. 54: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (3 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press -Q- button to confirm input.

Indicated on display:

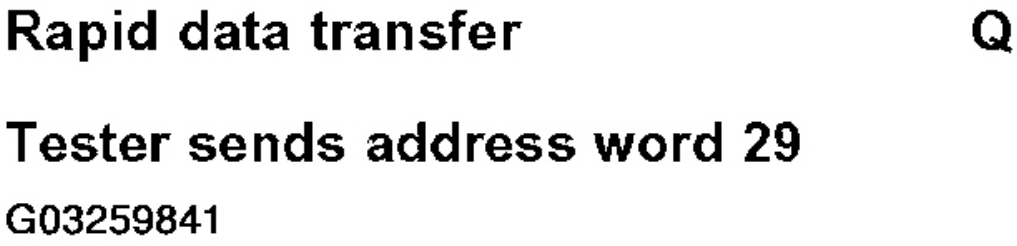


Fig. 55: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (4 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Control module version, checking

Fig. 56: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (5 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Indicated on display

Upper line:

- Part No. of control module (Part and version numbers illustrated here are examples only)
- System designation (headlight range control)
- Version number (Part and version numbers illustrated here are examples only)

Bottom line:

- Coding number (Dependent on type of drive.)
- Dealership number

- Press --> key.

Indicated on display:

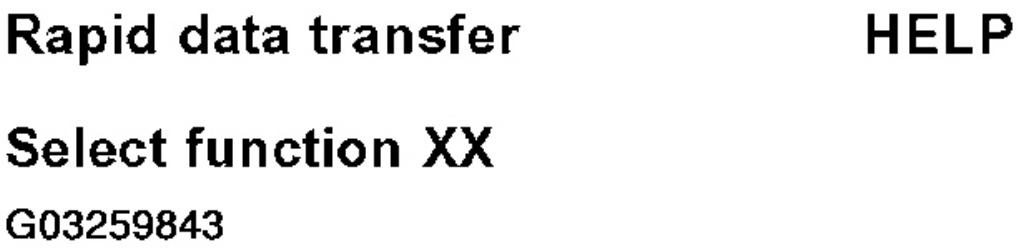


Fig. 57: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (6 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press keys -0- and -8- to select "Read measuring value block" address word 08.

Indicated on display:

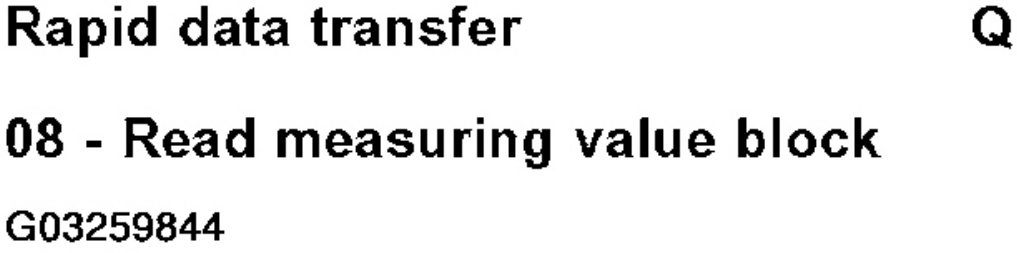


Fig. 58: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (7 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press -Q- button to confirm input.

Indicated on display:

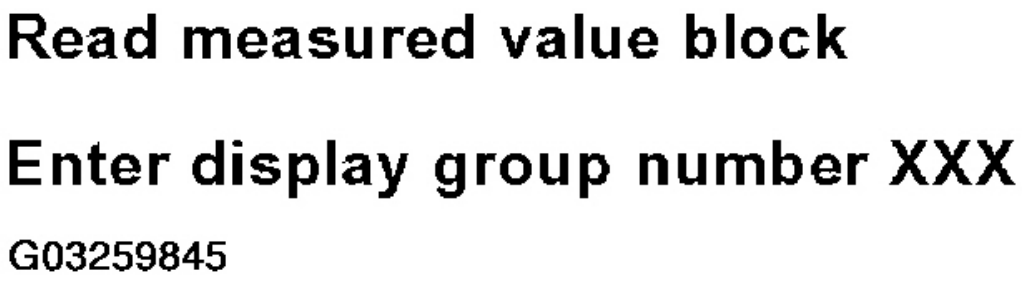


Fig. 59: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (8 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press key 0 twice and press key 2 once to select display group number 002.
- Press -Q- button to confirm input.

Indicated on display:

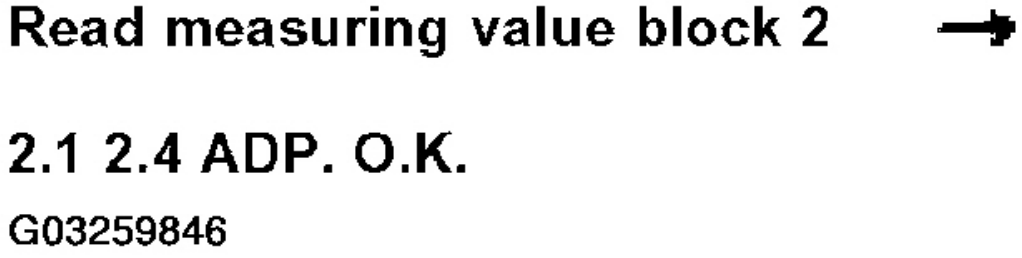


Fig. 60: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (9 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

NOTE: Specification for rear level control system sensor, shown in display zone 2, must lie between 2.0 - 3.5 Volt.

NOTE: If voltage is outside specified tolerances, then check for the following:

- **sensor is not loose in it's mounting.**

- **sensor coupling rod is not bent.**
- **electrical connections are correctly connected, free from corrosion and are locked in position.**

If malfunctions cannot be located in the above items, then perform troubleshooting using the Automatic Headlight Range Control On Board Diagnostic (OBD) program.

See **On Board Diagnostic (OBD), function** .

- Press --> key.

Indicated on display:

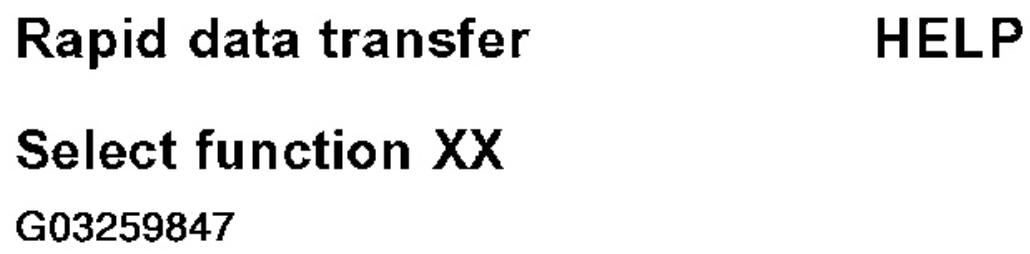


Fig. 61: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (10 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press keys 0 and 6 to select "End output" function 06.

Indicated on display:

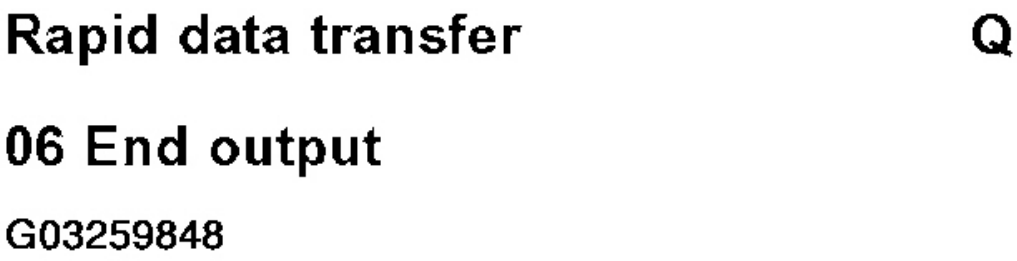


Fig. 62: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (11 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Press -Q- button to confirm input.

Indicated on display:

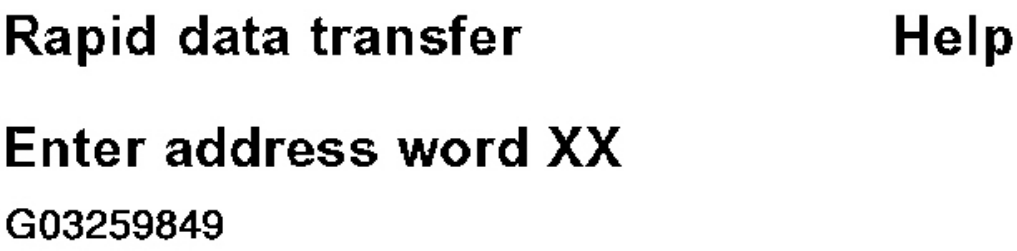


Fig. 63: VAG 1551/1552 Scan Tool Display - Left Rear Level Control System Sensor -G76 (12 Of 12)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

After checking the adjustment of the coupling rod, the related electrical components must adjusted to the revised settings. Perform basic settings of the automatic headlight range control to adjust to the revised settings.

See **On Board Diagnostic (OBD), function** .

HEADLIGHT BEAM ADJUSTING MOTOR -V48- / -V49-, REMOVING AND INSTALLING

Removing

- Remove headlight housing. See **HEADLIGHT HOUSING WITH HIGH INTENSITY GAS**

DISCHARGE (HID) LAMP, REMOVING AND INSTALLING .

- Remove sealing cap. See **HEADLIGHTS WITH HIGH INTENSITY GAS DISCHARGE (HID) LAMP, REPLACING BULBS** .
- Remove screws -arrows- on motor.

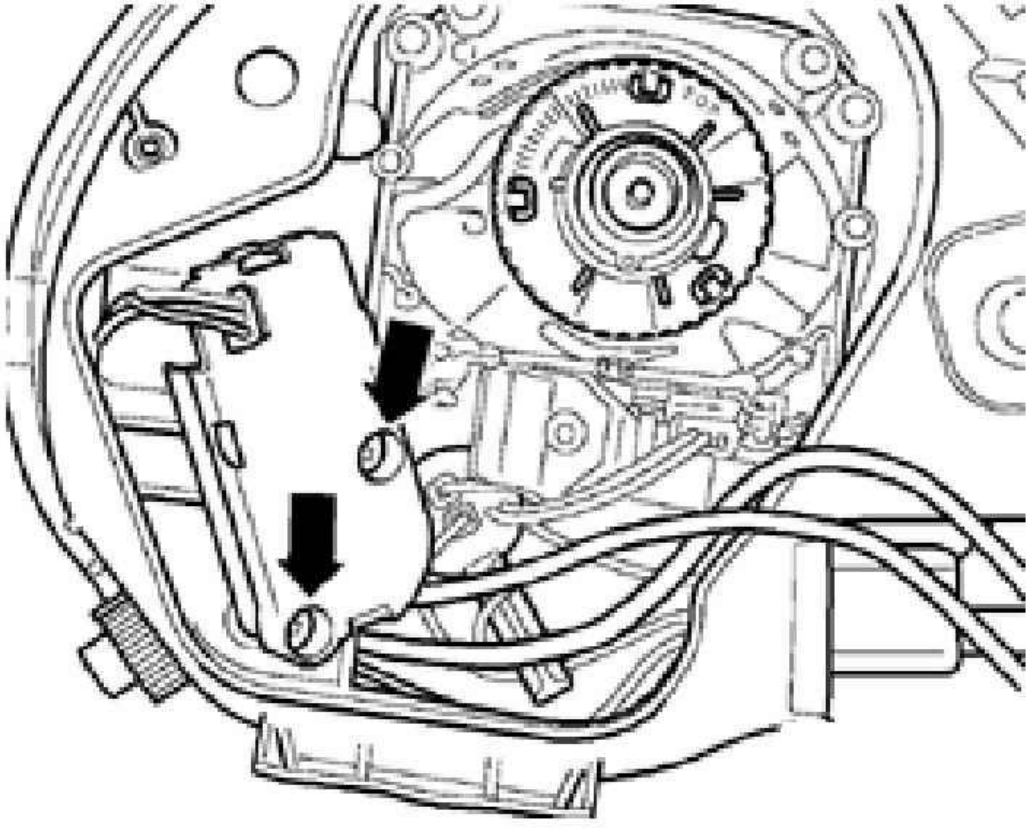


Fig. 64: Removing Headlight Beam Adjusting Motor Screws
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Pull positioning rod ball head out from locking device on reflector.
- Disconnect electrical connection.

Installing

Installation in reverse sequence or removal.

- Check headlight function.
- Perform headlight basic setting (function 04) using On Board Diagnostic program, See **ON BOARD DIAGNOSTIC (OBD), FUNCTION** .

FRONT TURN SIGNAL AND SIDE MARKER LIGHTS

FRONT TURN SIGNAL AND SIDE MARKER LIGHTS, REMOVING AND INSTALLING

CAUTION:
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Remove screw cover.

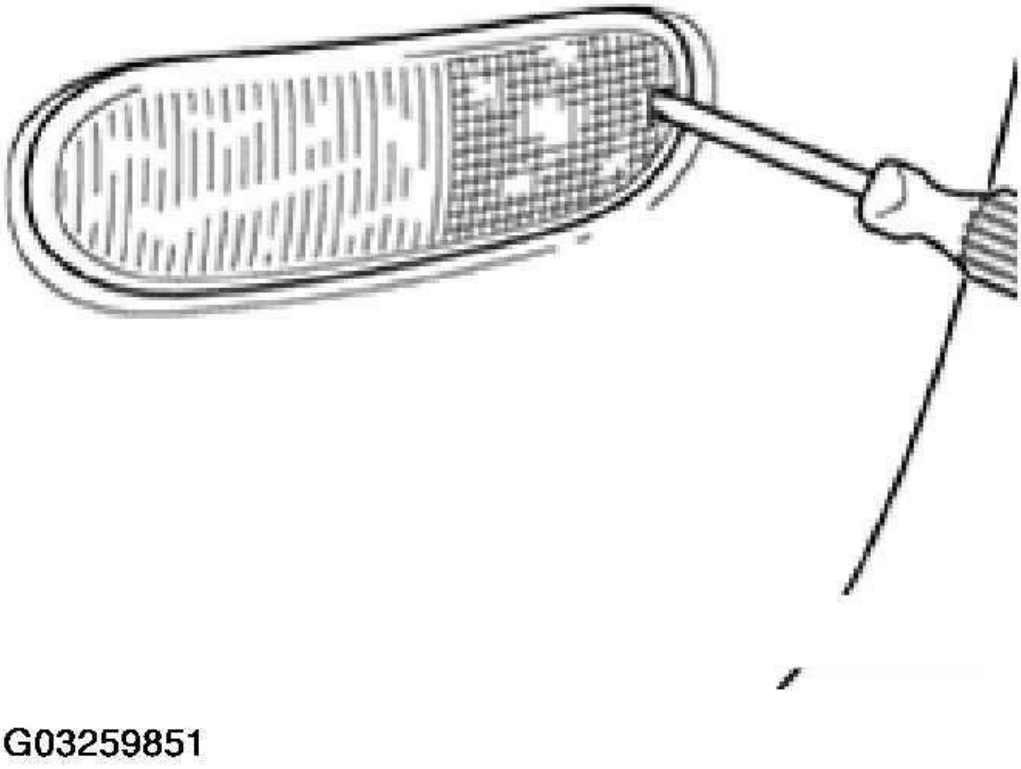


Fig. 65: Removing Front Turn Signal And Side Marker Lights Screw Cover
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove securing screw.
- Pull turn signal out forwards.
- Disconnect electrical connector.

Installing

- Connect electrical connector.
- Slide turn signal into fender opening.

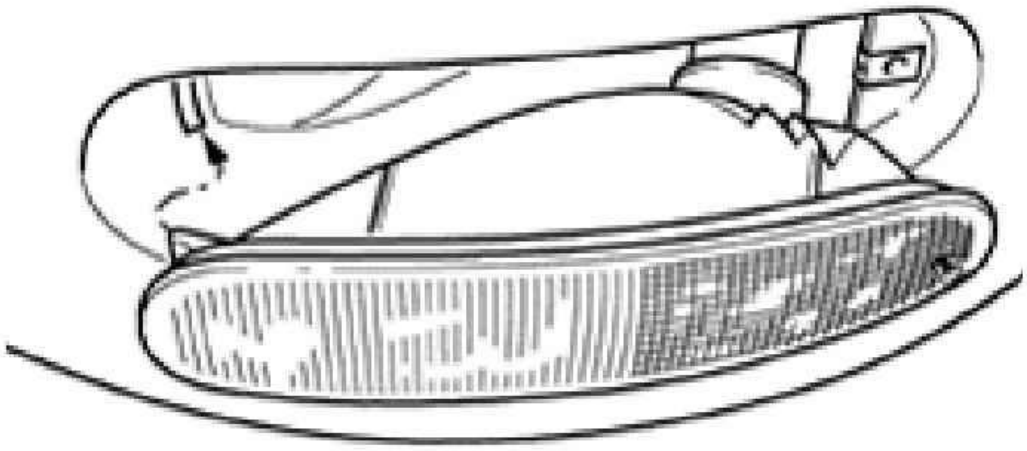


Fig. 66: Sliding Turn Signal Into Fender Opening
Courtesy of VOLKSWAGEN OF AMERICA, INC.

FRONT TURN SIGNAL AND SIDE MARKER LIGHT BULB, REPLACING

Removing

- Remove turn signal lights and side marker lights. See **FRONT TURN SIGNAL AND SIDE MARKER LIGHTS** .
- Turn bulb holder in direction shown -arrow- and pull out from housing.
- Remove bulb from holder.

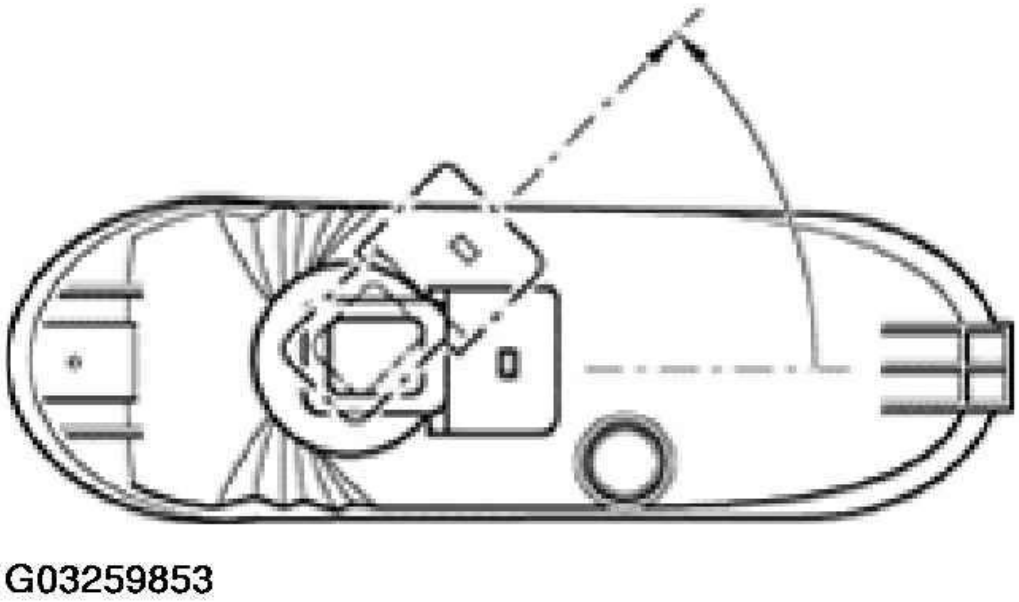


Fig. 67: Removing Bulb From Holder
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation, can cause the glass to cloud over.

- Install in reverse order of removal.
- When installing, make sure bulb holder engages in housing by turning in opposite direction to direction shown -arrow-.

FRONT TURN SIGNAL AND SIDE MARKER LIGHTS (TURBO S MODELS ONLY)

FRONT TURN SIGNAL LIGHTS, REMOVING AND INSTALLING

Removing

- Bring lock carrier into service position

  See **LOCK CARRIER, MOVING TO SERVICE POSITION** .

- Disconnect electrical connection to turn signal housing.
- Remove screw -1- and swing turn signal housing -2- out of mounting.

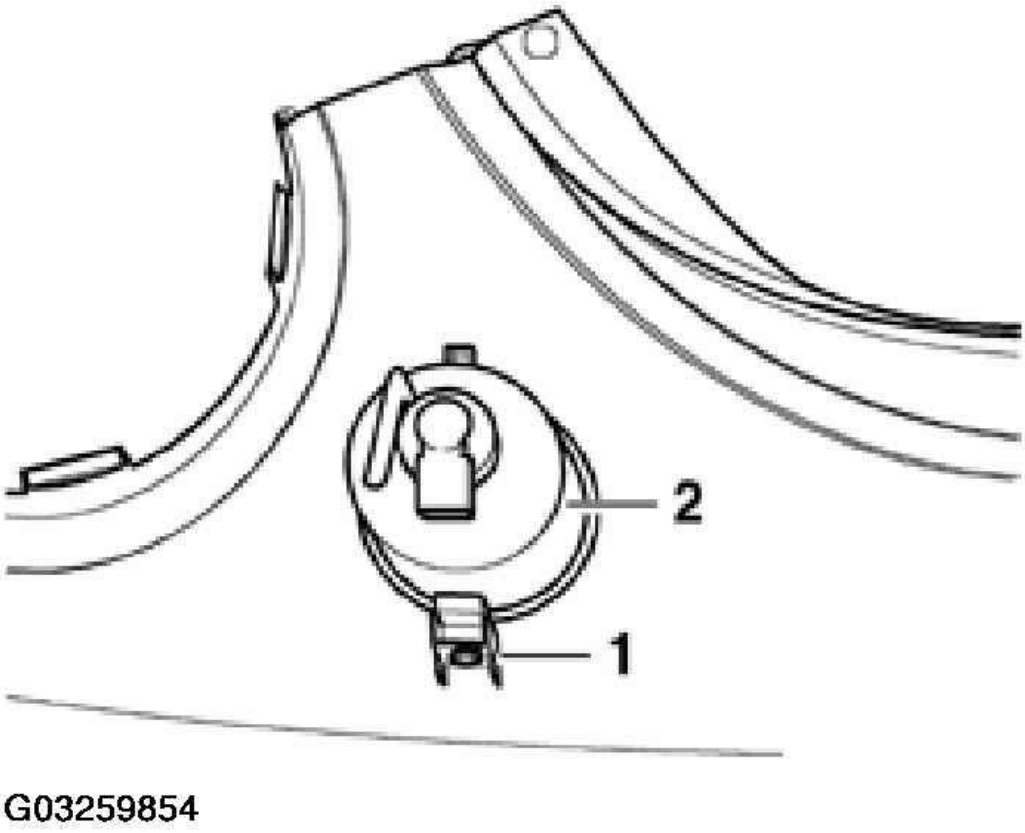


Fig. 68: Removing Screw And Swing Turn Signal Housing
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

Install in reverse order of removal.

FRONT TURN SIGNAL BULB, REPLACING

Removing

- Remove front turn signal. See **FRONT TURN SIGNAL AND SIDE MARKER LIGHTS (TURBO S MODELS ONLY)** .
- Turn bulb holder and pull out from housing as follows:

Left light: turn bulb holder counterclockwise

Right light: turn bulb holder clockwise.

- Remove bulb from bulb holder.

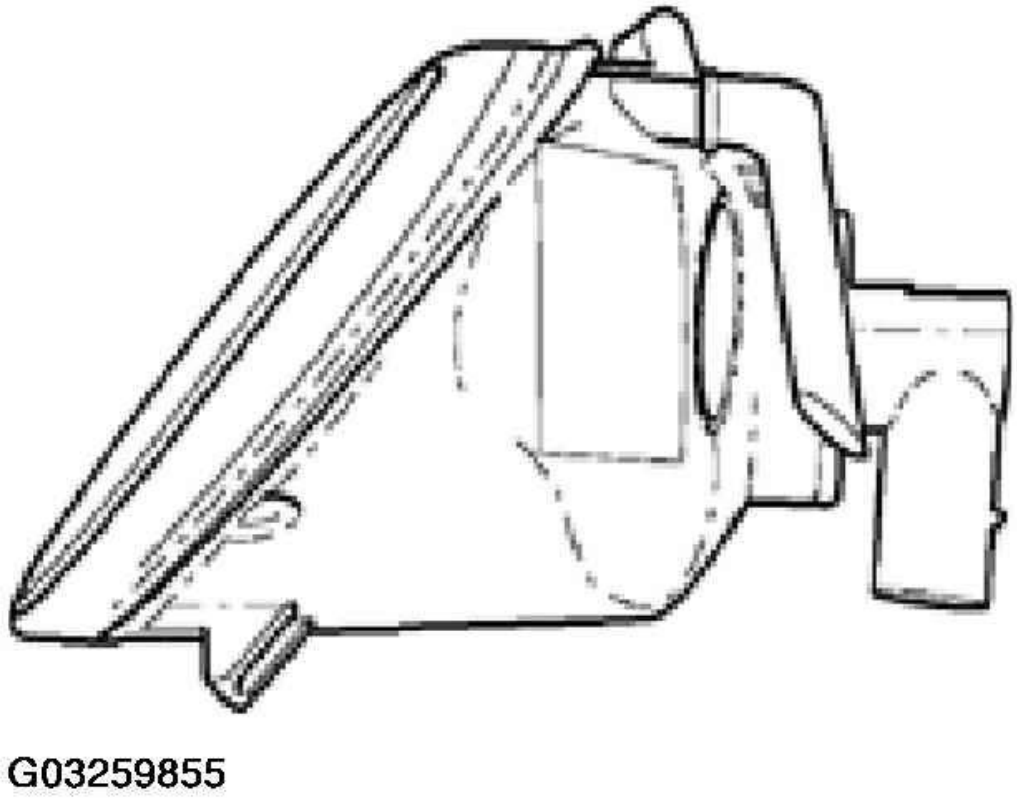


Fig. 69: Removing Front Turn Signal Bulb From Holder
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation, can cause the glass to cloud over.

- Install in reverse order of removal.

NOTE: **When installing, ensure bulb holder engages fully in housing, and turn in opposite direction of removal.**

FRONT SIDE MARKER LIGHTS, REMOVING AND INSTALLING

CAUTION:
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Remove front inner fender liner

  See **WHEEL HOUSING LINER** .

- Carefully press retainer clip in direction of -arrow-.

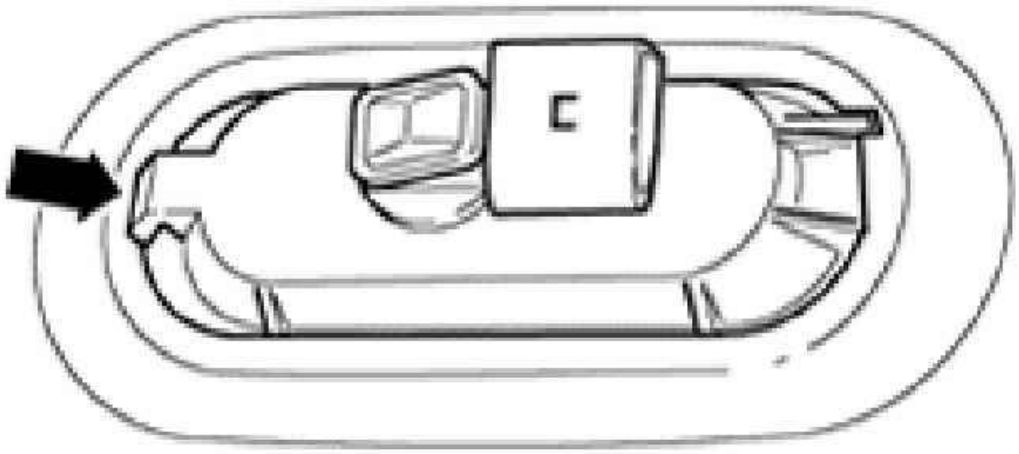


Fig. 70: Removing Front Side Marker Light Retainer Clip
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Disconnect electrical connection.

Installing

- Reconnect electrical connection.

- Insert side marker light into bumper and click in place, make sure locating boss is seated correctly in cutout -arrow-

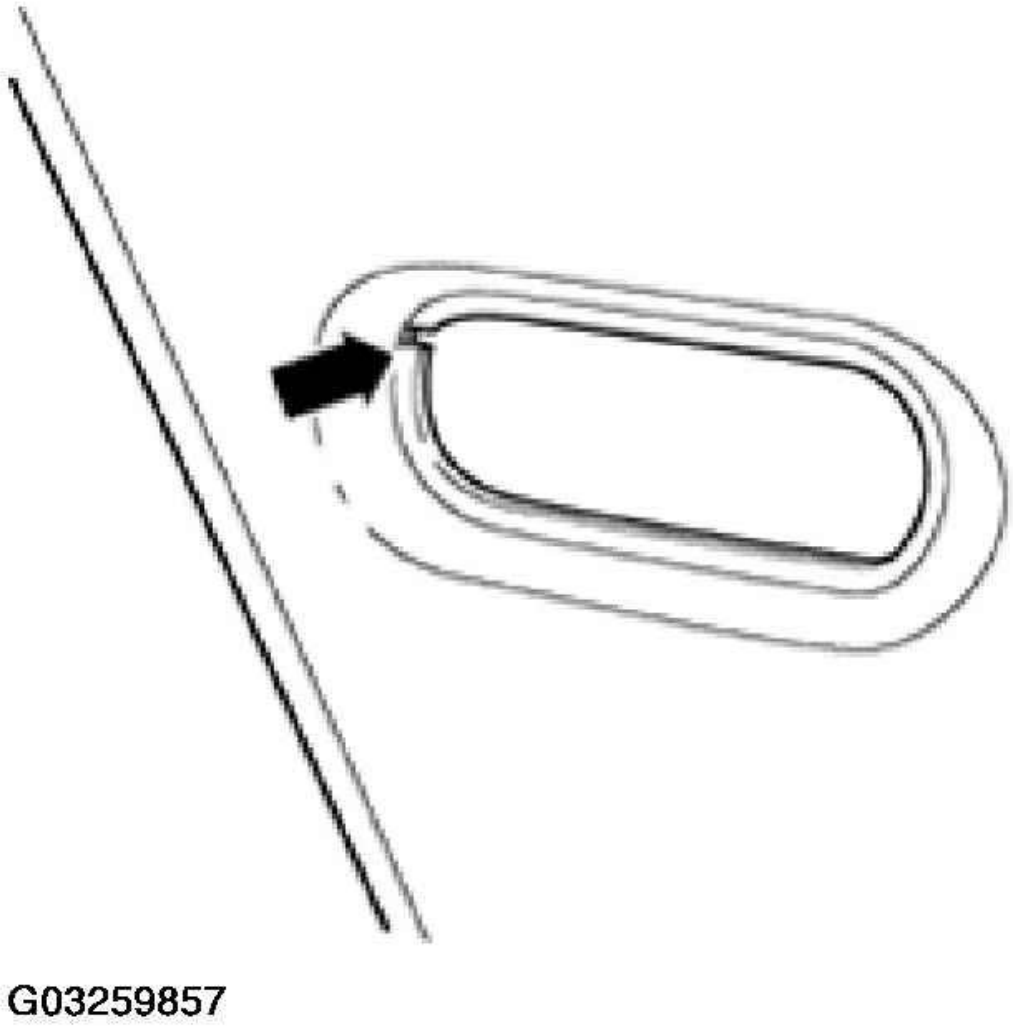


Fig. 71: Inserting Side Marker Light Into Bumper
Courtesy of VOLKSWAGEN OF AMERICA, INC.

FRONT SIDE MARKER LIGHT BULB, REPLACING

CAUTION:
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Remove front inner fender liner.

  See **WHEEL HOUSING LINER** .

- Turn bulb holder in direction of -arrow- and pull out from housing.

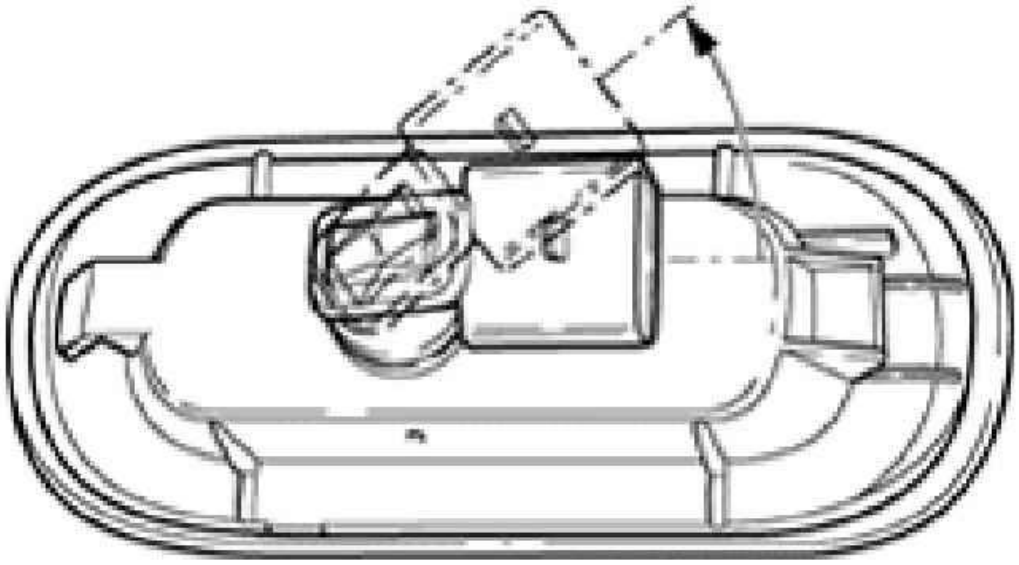


Fig. 72: Removing Front Side Marker Light Bulb
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Pull out bulb, do not turn.

Installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation, can cause the glass to cloud over.

- Install in reverse order of removal.

NOTE: When installing, ensure bulb holder engages fully in housing, and turn in

opposite direction of removal.

SIDE MOUNTED TURN SIGNALS

SIDE MOUNTED TURN SIGNALS IN FRONT QUARTER PANELS, REMOVING AND INSTALLING

NOTE:

- **New Beetle Sedan from 06.99 through m.y. 2003 have side mounted turn signals mounted in the front quarter panels.**
- **Side mounted turn signals can only be removed from the vehicle interior.**
- **Light emitting diodes (LED) with a long service life are installed in the side mounted turn signals, instead of normal bulbs.**
- **The complete turn signal must be replaced if damaged.**

Removing

CAUTION:

- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

- Remove inner plenum panel cover:

  See **PLENUM CHAMBER INNER COVER, REMOVING AND INSTALLING** .

- Remove dust and pollen filter (right-hand side only)

  See **CABIN AIR FILTER** .

- Pull rubber grommet -3- off.

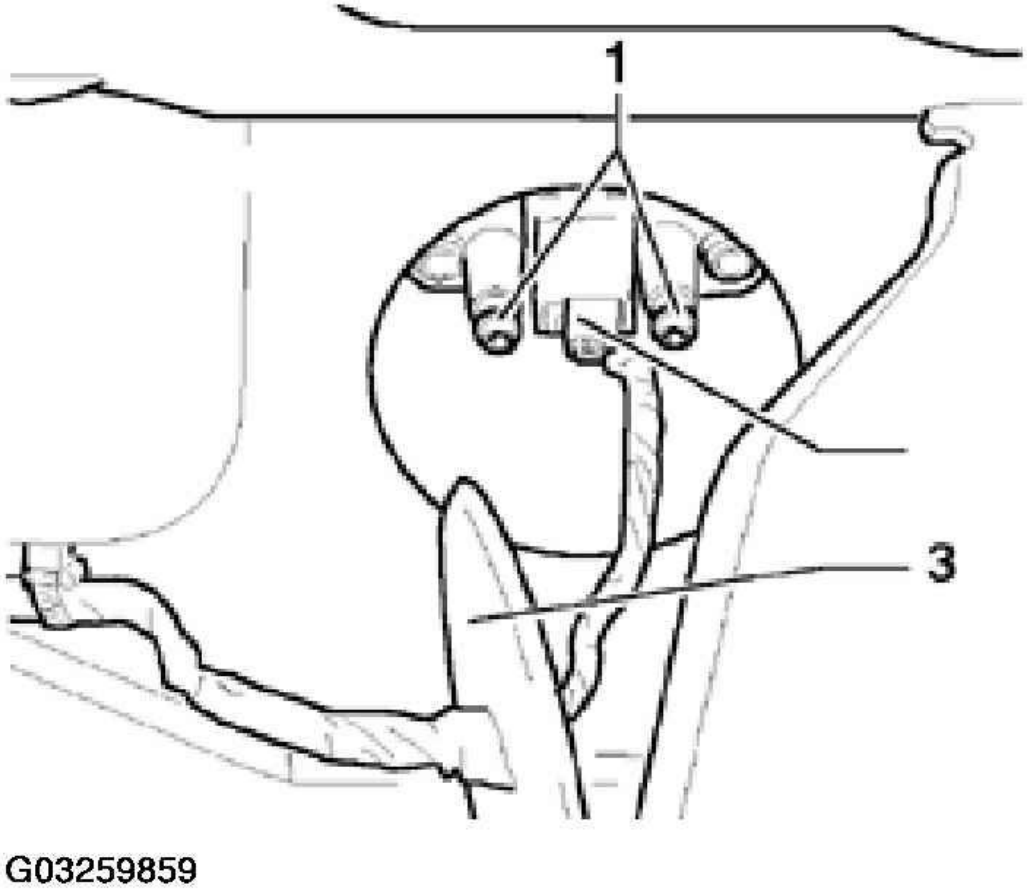


Fig. 73: Removing Side Mounted Turn Signals In Front Quarter Panels
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Disconnect electrical connector.
- Remove screws -1- (screws are secured against falling out).
- Pull side mounted turn signal out outwards.

Installing

Install in reverse order of removal.

SIDE MOUNTED TURN SIGNALS IN REAR VIEW MIRROR HOUSING, REMOVING AND INSTALLING

NOTE: New Beetle Convertible from m.y 2003 and Sedan from m.y 2004 have side

mounted turn signals -1- integrated to mirror housing.

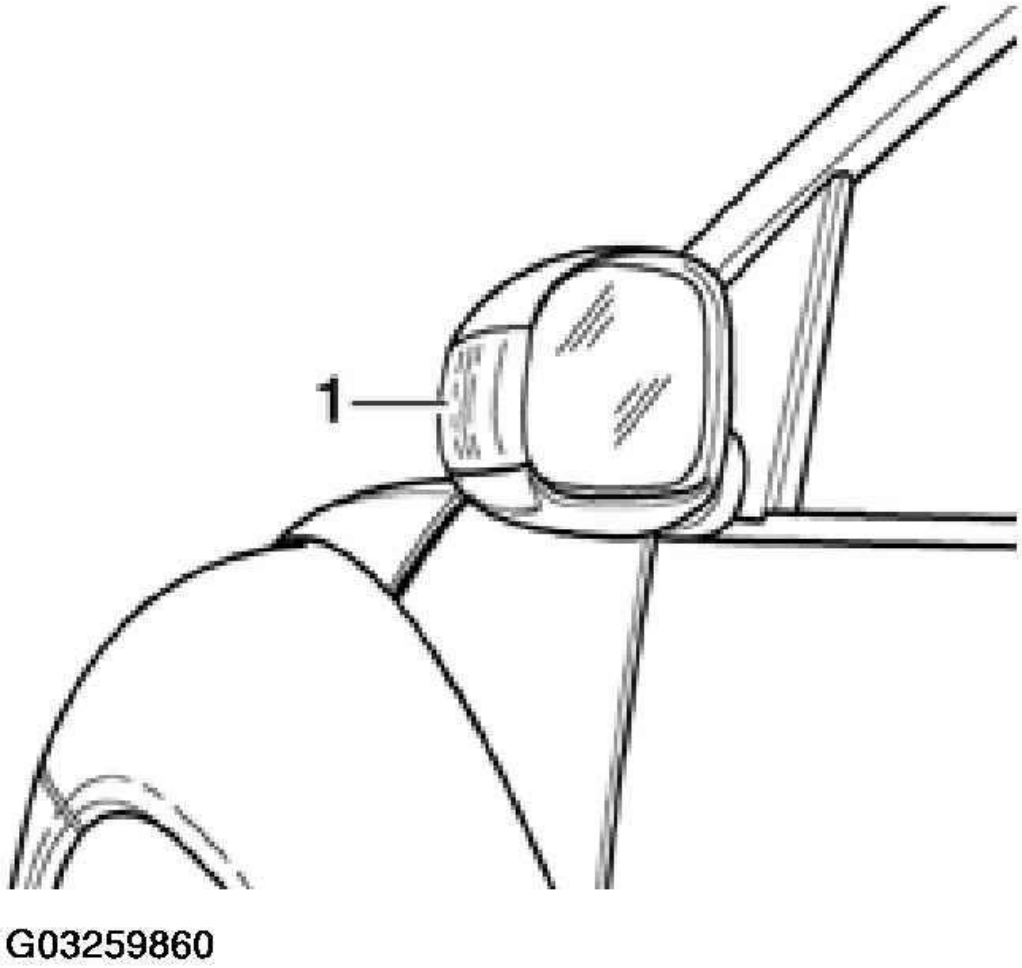


Fig. 74: Side Mounted Turn Signals -1- Integrated To Mirror Housing
Courtesy of VOLKSWAGEN OF AMERICA, INC.

CAUTION:
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Remove mirror housing

See **MIRROR HOUSING, REMOVING AND INSTALLING** .

- Remove screw -1-.

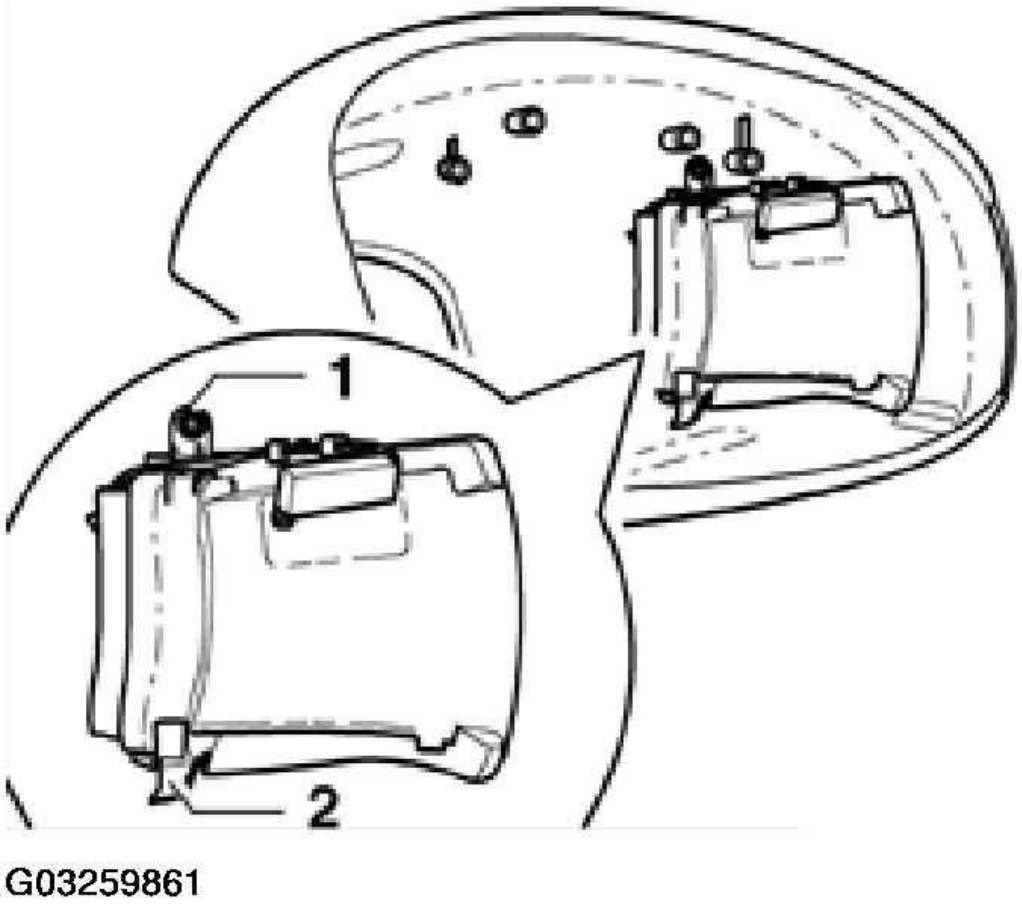


Fig. 75: Removing Side Mounted Turn Signals In Rear View Mirror Housing
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Unlock securing latch -2- manually by pushing it gently upwards.
- Remove turn signal by pushing it in towards the mirror housing.

Installing

Install in reverse order of removal.

NOTE: In case of damaged mirror housing and/or turn signals, both can be found as

separate spare parts.

REAR LIGHTS

REAR LIGHTS, ASSEMBLY

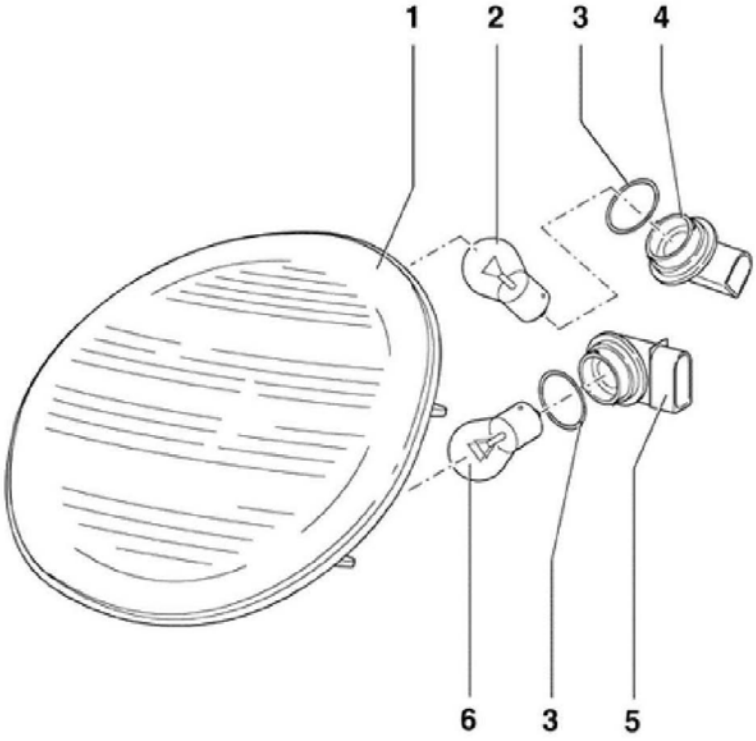
NOTE: The following list refers to items in Fig. 76 .

1. **Housing**
   - Replace if gasket is faulty
   - Removing and installing. See **REAR LIGHT HOUSING, REMOVING AND INSTALLING** .
2. **Turn signal bulb**

   12V/21W

3. **O-ring**
   - Replace if damaged
4. **Bulb holder for turn signal**
   - Removing and installing. See **REAR LIGHT BULBS, REPLACING** .
5. **Bulb holder for brake light and taillight**
   - Removing and installing. See **REAR LIGHT BULBS, REPLACING** .
6. **Dual filament bulb for brake light and taillight**

   12V/21W/5W



1 - Housing

2 - Turn signal bulb

3 - O-ring

4 - Bulb holder for turn signal

5 - Bulb holder for brake light and taillight

6 - Dual filament bulb for brake light and taillight

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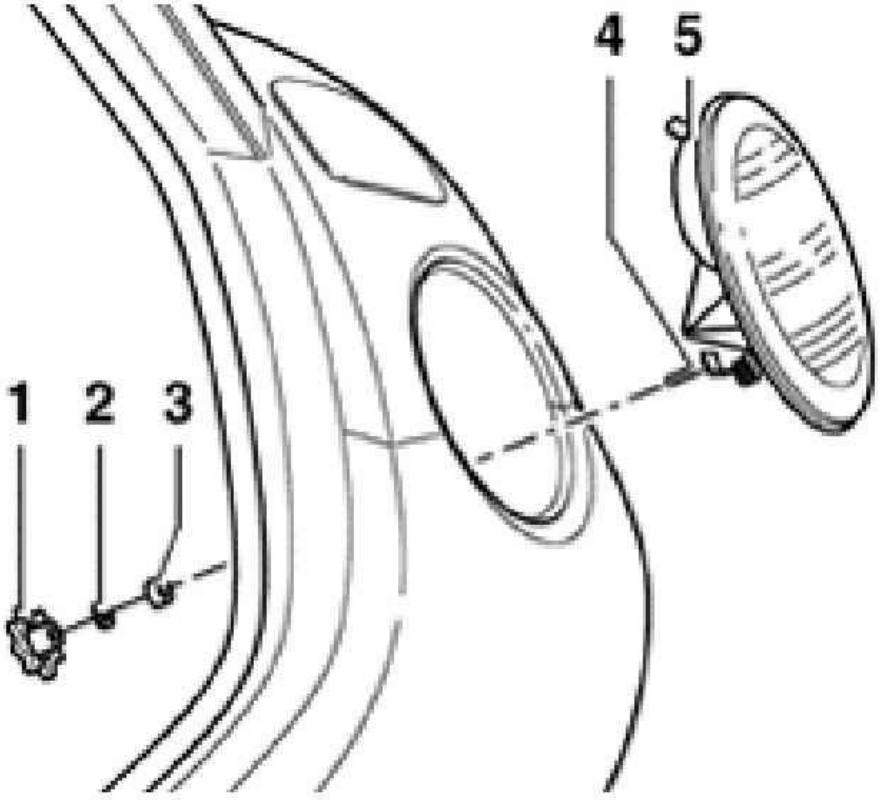
Fig. 76: Identifying Rear Light Assembly
Courtesy of VOLKSWAGEN OF AMERICA, INC.

REAR LIGHT HOUSING, REMOVING AND INSTALLING

Removing

NOTE: The following list refers to items in Fig. 77 .

1. Knurled nut
2. Washer
3. Spacer
4. Retaining bolt
5. Rear light



1 - Knurled nut

2 - Washer

3 - Spacer

4 - Retaining bolt

5 - Rear light

G03259863

Fig. 77: Rear Light Housing
Courtesy of VOLKSWAGEN OF AMERICA, INC.

CAUTION:
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

- Remove rear striker mount cover.

  See **LOAD AND LUGGAGE AREA TRIMS** .

- Reach behind respective quarter panel trim and unscrew knurled nut -1-. Make sure washer -2- and spacer -3- do not fall down. See **Fig. 77** .
- Remove rear light -5- and disconnect electrical connector.

Installing

- Connect electrical connector.
- Insert rear light housing into body opening.
- Insert retaining bolt -4- into body opening.
- Insert rear light into cutout -arrow-.

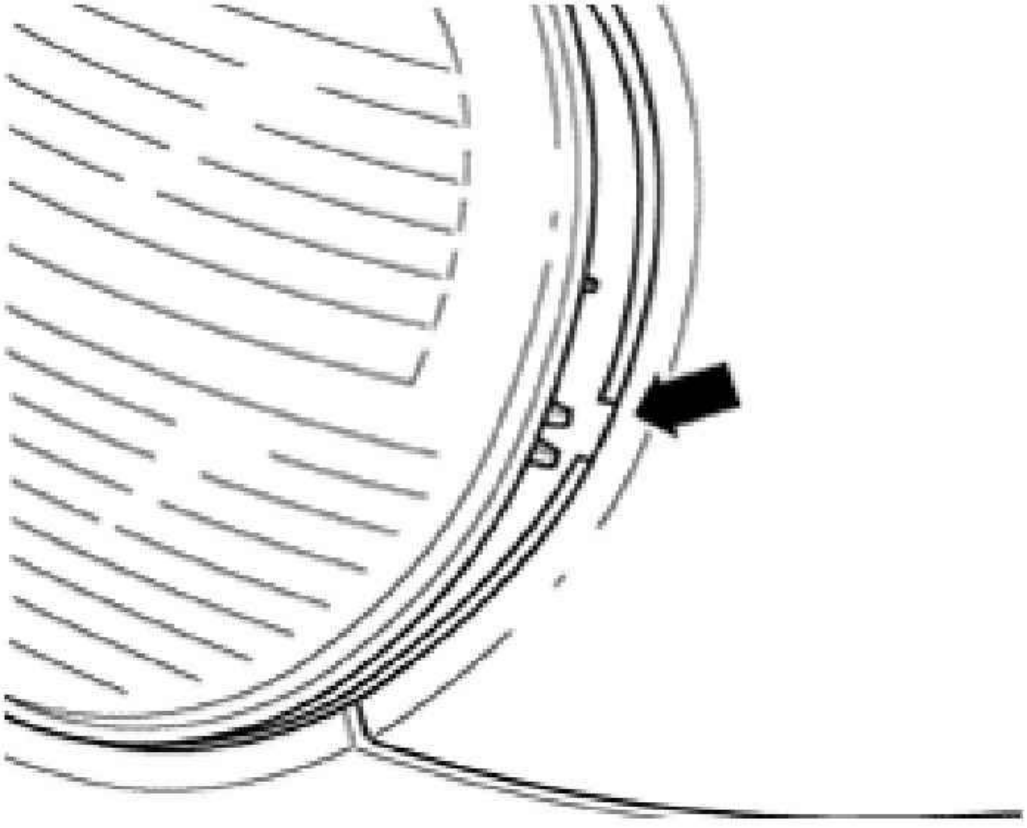


Fig. 78: Inserting Rear Light Into Cutout
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Slide spacer -3- and washer -2- onto retaining bolt -4-, attach knurled nut -1- and tighten by hand.

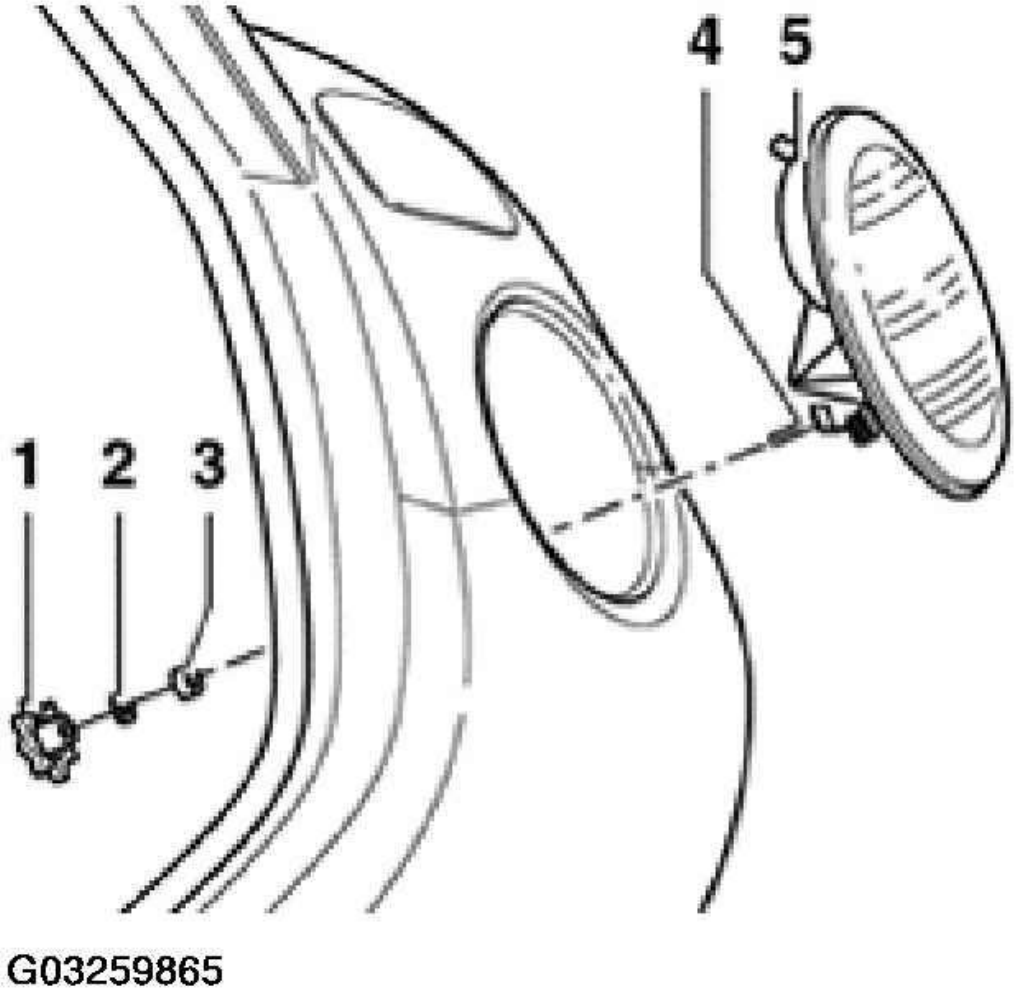


Fig. 79: Installing Spacer And Washer Onto Retaining Bolt
Courtesy of VOLKSWAGEN OF AMERICA, INC.

REAR LIGHT BULBS, REPLACING

The procedure for removing and installing turn signal light bulbs is the same as that for brake light and taillight bulbs.

Only the procedure for brake light and taillight bulbs is described here.

Removing

- Remove rear light. See **REAR LIGHT HOUSING, REMOVING AND INSTALLING** .

- Turn bulb holder in direction shown -arrow- and remove from housing.
- Remove bulb from holder.

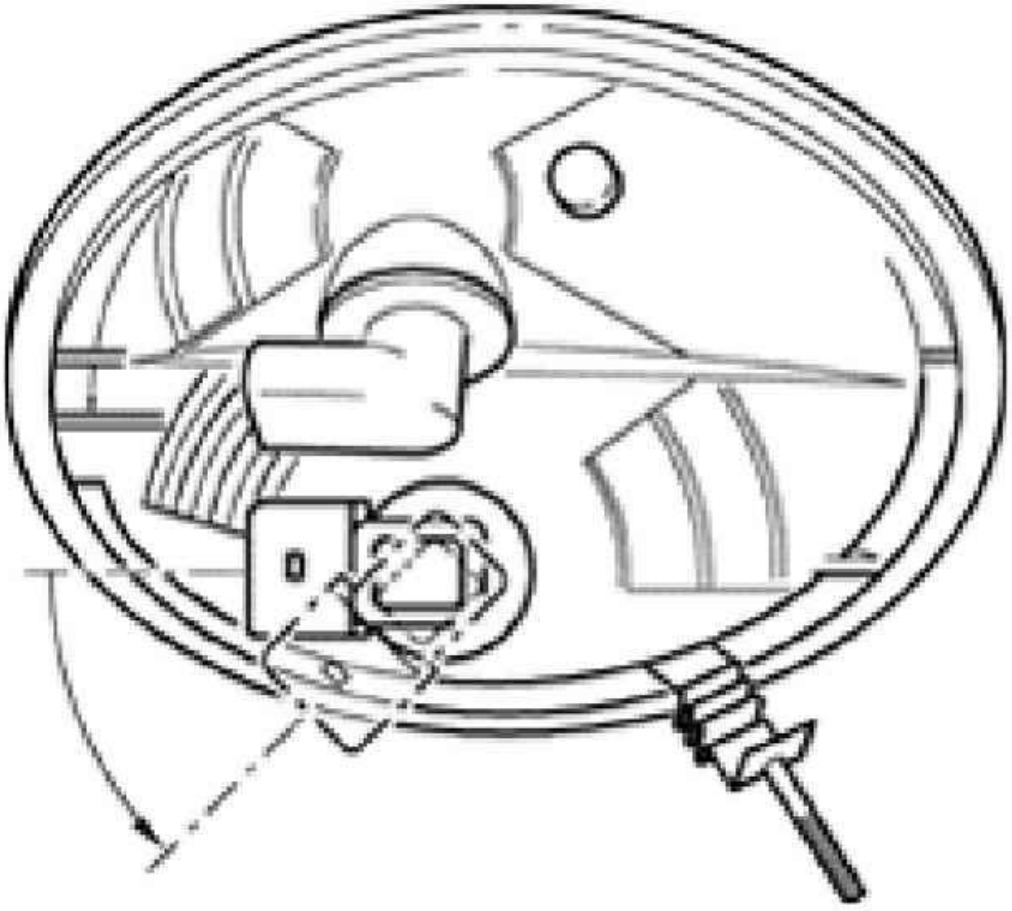


Fig. 80: Removing Rear Light Bulb From Holder
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation, can cause the glass to cloud over.

- Install in reverse order of removal.
- When installing, make sure bulb holder engages in housing by turning in opposite direction shown -arrow-.

REAR SIDE MARKER LIGHTS, REMOVING AND INSTALLING

CAUTION:
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Remove rear inner fender liner.

  See **REAR WHEEL HOUSINGS LINER, ASSEMBLY OVERVIEW** .

- On inner side of bumper, carefully press retainer clip in direction shown -arrow-.

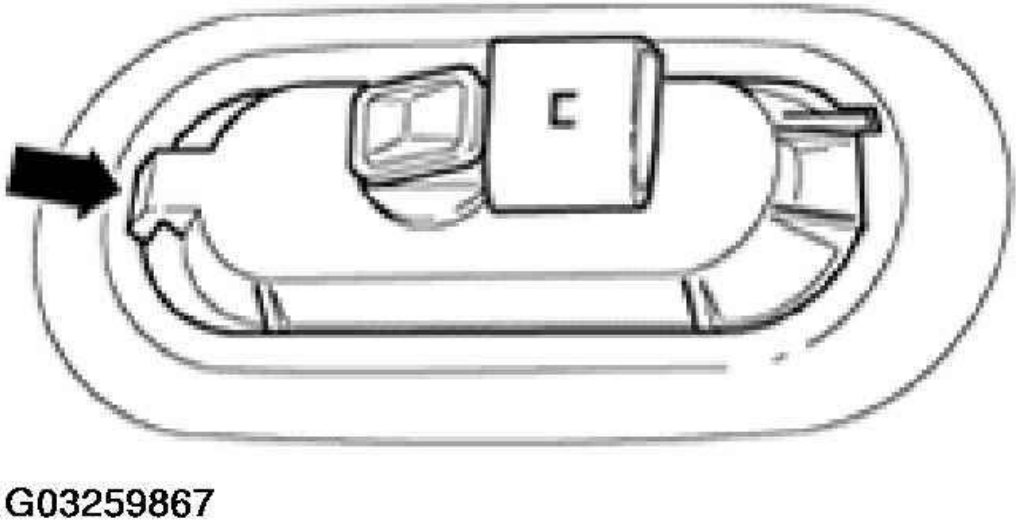


Fig. 81: Removing Rear Side Marker Light Retainer Clip
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Disconnect electrical connector.

Installing

- Connect electrical connector.
- Insert side marker light into bumper and click in place, make sure locating boss is seated correctly in cutout -arrow-.

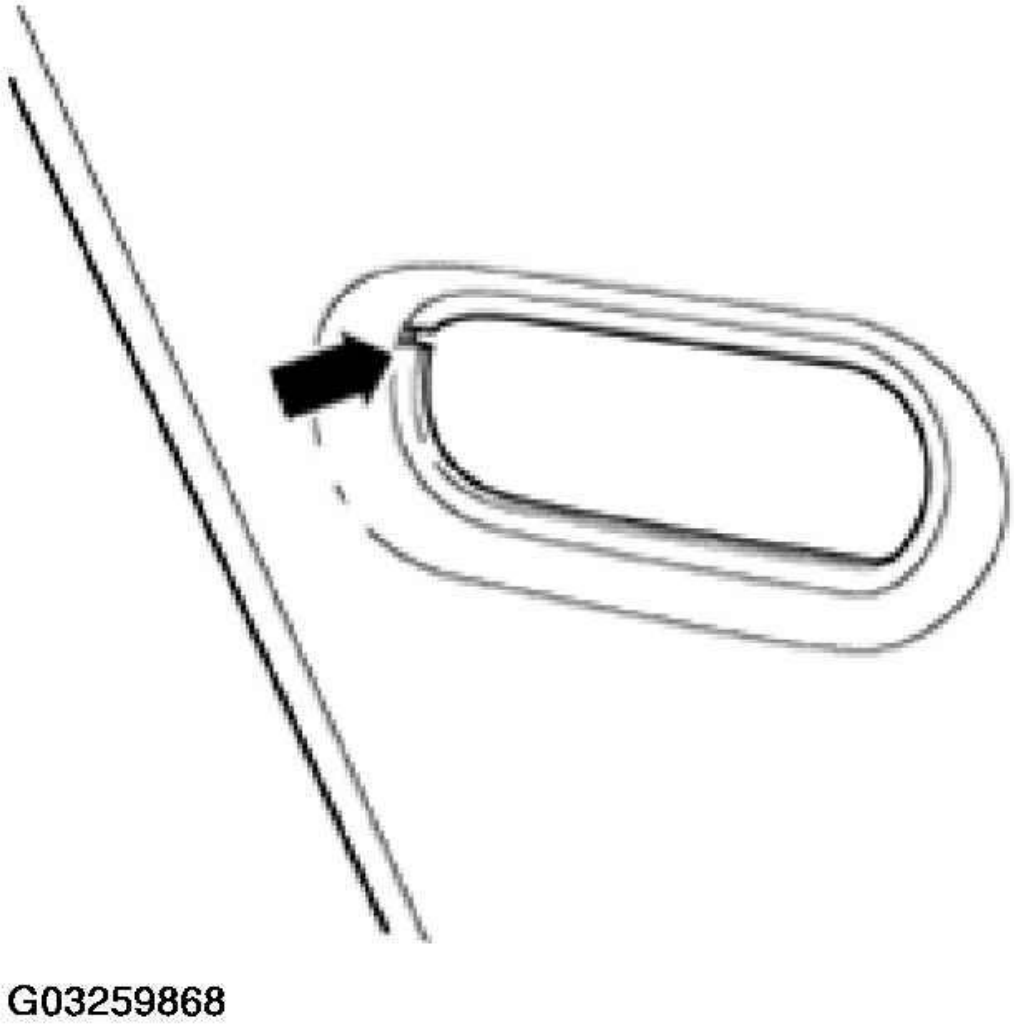


Fig. 82: Inserting Rear Side Marker Light Into Bumper
Courtesy of VOLKSWAGEN OF AMERICA, INC.

REAR SIDE MARKER LIGHT BULB, REPLACING

- Switch off all electrical consumers.
- Switch ignition off and remove ignition key.

Removing

CAUTION:
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

- Remove rear inner fender liner.

  See **REAR WHEEL HOUSINGS LINER, ASSEMBLY OVERVIEW** .

- Turn bulb holder in direction shown -arrow- and pull out from housing.

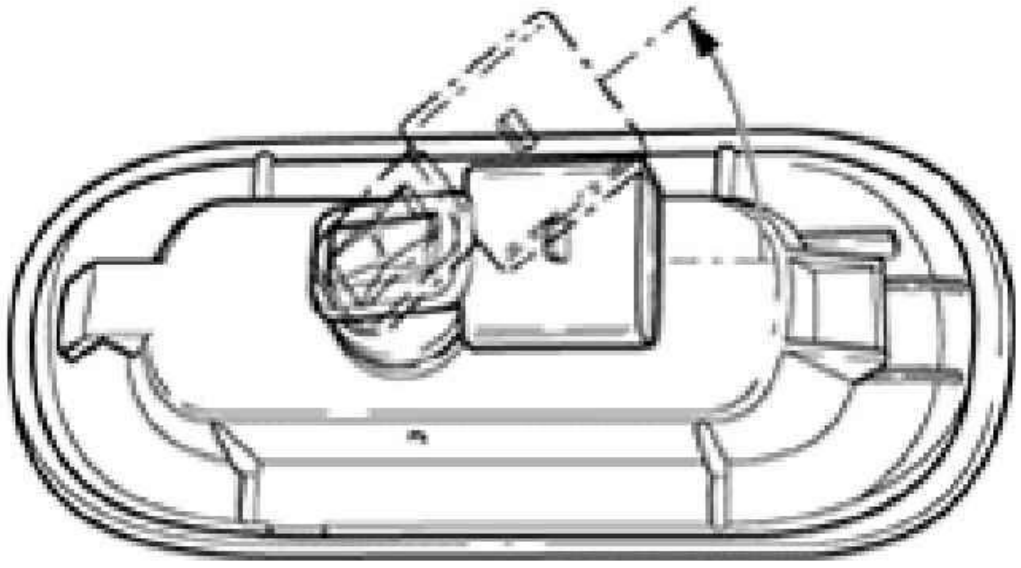


Fig. 83: Removing Rear Side Marker Light Bulb From Holder
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Pull out bulb (12V/5W), do not turn.

Installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation can cause the glass to cloud over.

- Install in reverse order of removal.

NOTE: When installing, make sure bulb holder engages in housing by turning in opposite direction shown -arrow-. See Fig. 83 .

BACK-UP LIGHTS, REMOVING AND INSTALLING

CAUTION:
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Remove retaining nuts M5 from inner side of rear bumper (arrows).

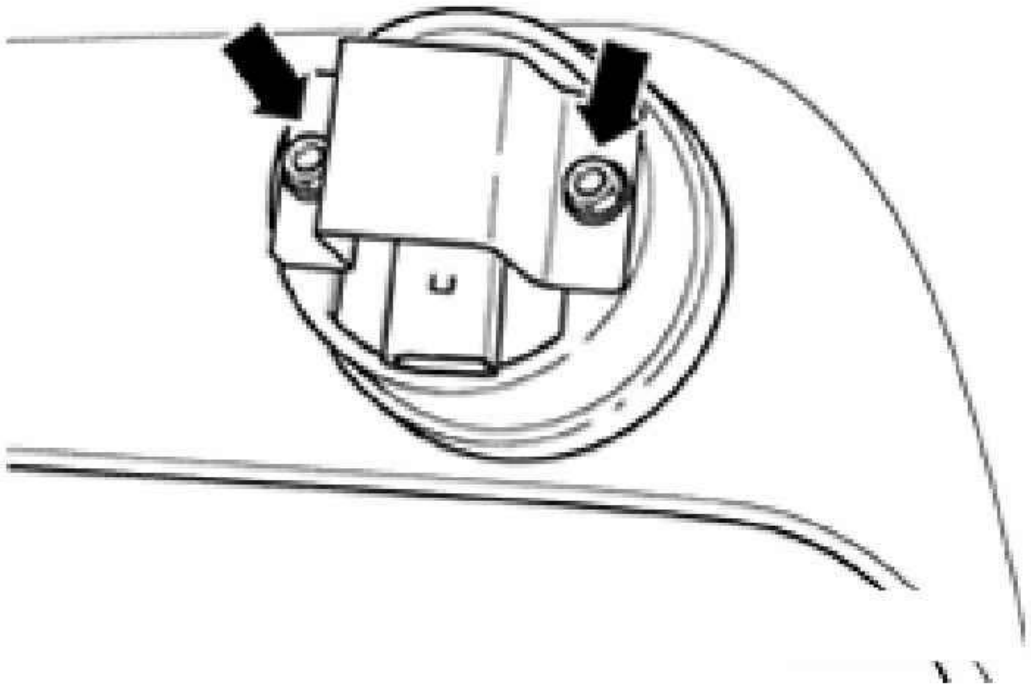


Fig. 84: Removing Back-Up Light Retaining Nuts M5 From Inner Side Of Rear Bumper
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove back-up lights toward rear.

- Disconnect electrical connector from back-up lights.

Installing

- Connect electrical connector.
- Install back-up lights into rear bumper and secure with retaining nuts.

BACK-UP LIGHT BULB, REPLACING

Removing

- Remove back-up light. See **BACK-UP LIGHTS, REMOVING AND INSTALLING** .
- Turn bulb holder in direction shown -arrow- and pull out from housing.
- Remove bulb from holder.

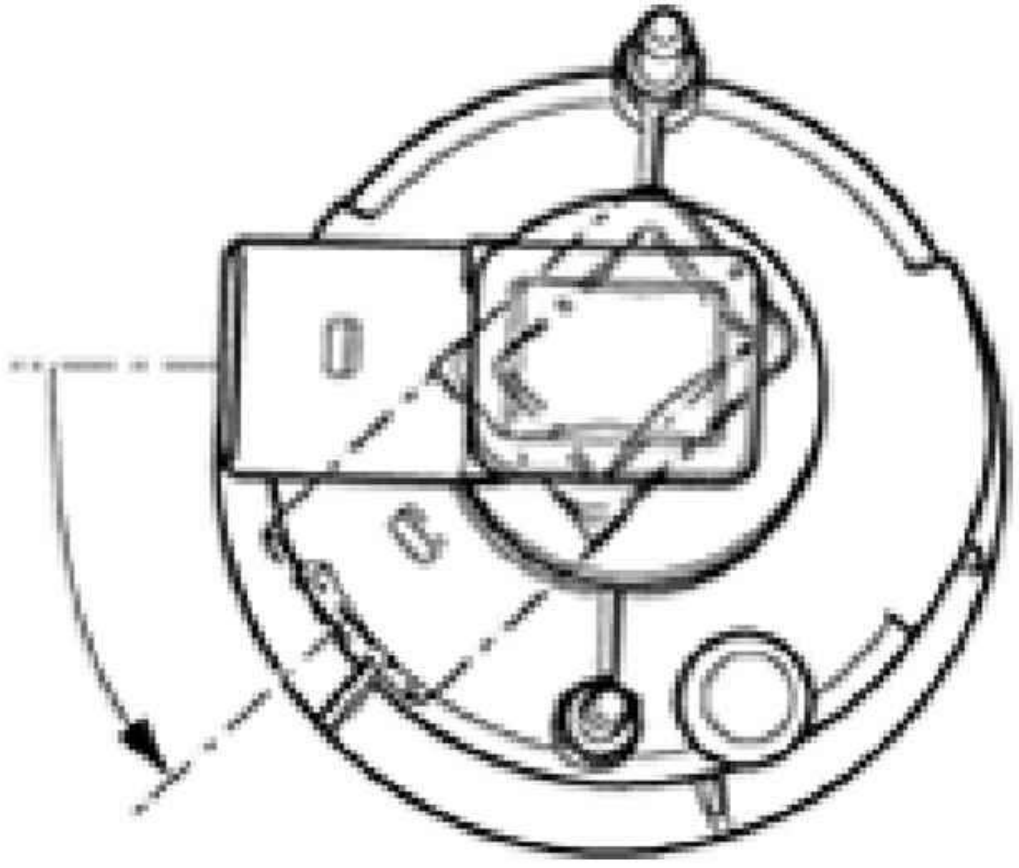


Fig. 85: Removing Back-Up Light Bulb From Holder
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation can cause the glass to cloud over.

- Install in reverse order of removal.

NOTE: When installing, make sure bulb holder engages in housing by turning in opposite direction shown -arrow-. See Fig. 85 .

HIGH MOUNT BRAKE LIGHT

HIGH MOUNT BRAKE LIGHT, REMOVING AND INSTALLING

The additional brake light is installed in the rear trunk lid.

CAUTION:

- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Remove rear lid lower trim.

  See **LOWER TRIM PANEL, ASSEMBLY OVERVIEW** .

- Remove Phillips-head screws (arrows) for high mount brake light.

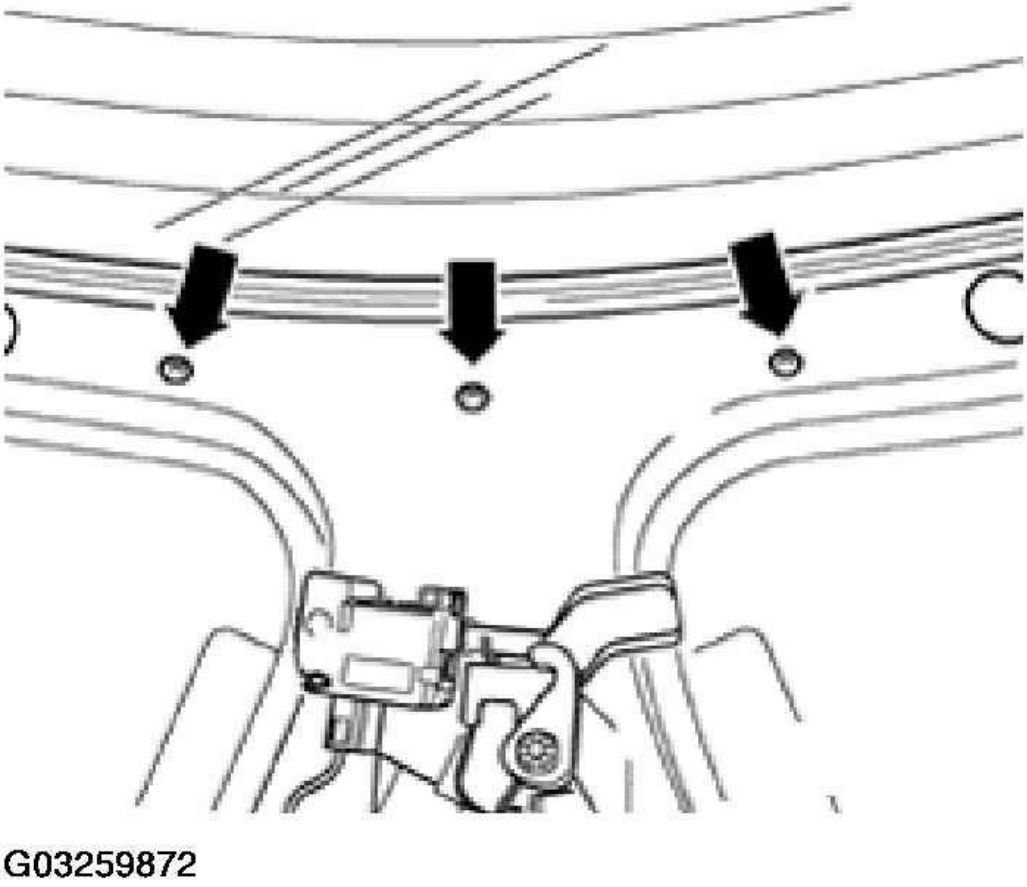


Fig. 86: Removing Phillips-Head Screws For High Mount Brake Light
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove brake light upward and disconnect electrical connector.

Installing

- Connect electrical connector.
- Insert brake light in bumper.

To attach screws:

- Reach behind panel and position high mount brake light correctly.
- Tighten screws.

LICENSE PLATE LIGHT

LICENSE PLATE LIGHT, REMOVING AND INSTALLING

CAUTION:

- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Carefully pry out license plate light -2- with suitable tool until retaining tab -1- releases.
- Remove license plate light -2-.

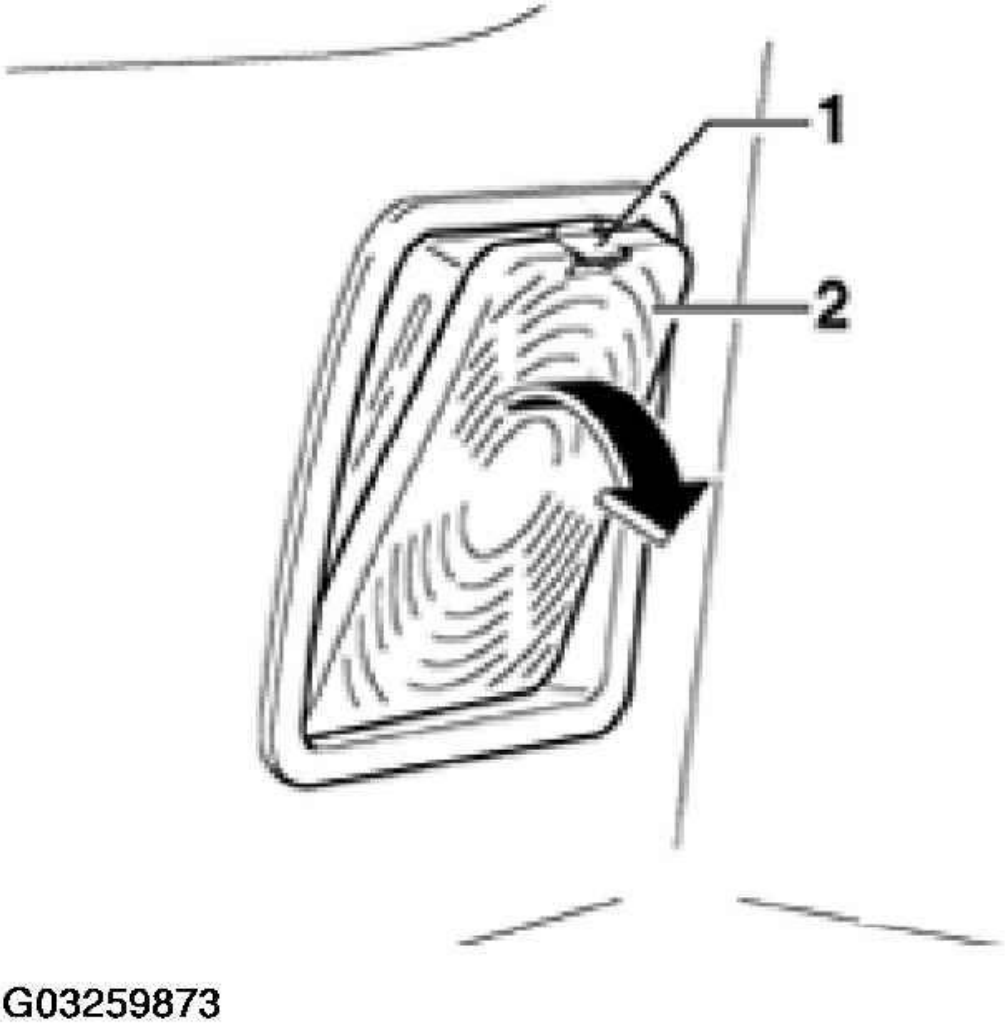


Fig. 87: Removing License Plate Light
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Disconnect electrical connector.

Installing

- Connect electrical connector.
- Insert license plate light in bumper.
- Press in upper retaining tab -1- and lock in position.

LICENSE PLATE LIGHT BULB, REPLACING

Removing

- Remove license plate light. See **LICENSE PLATE LIGHT** .
- Turn bulb holder in direction shown -arrow- and remove from housing.

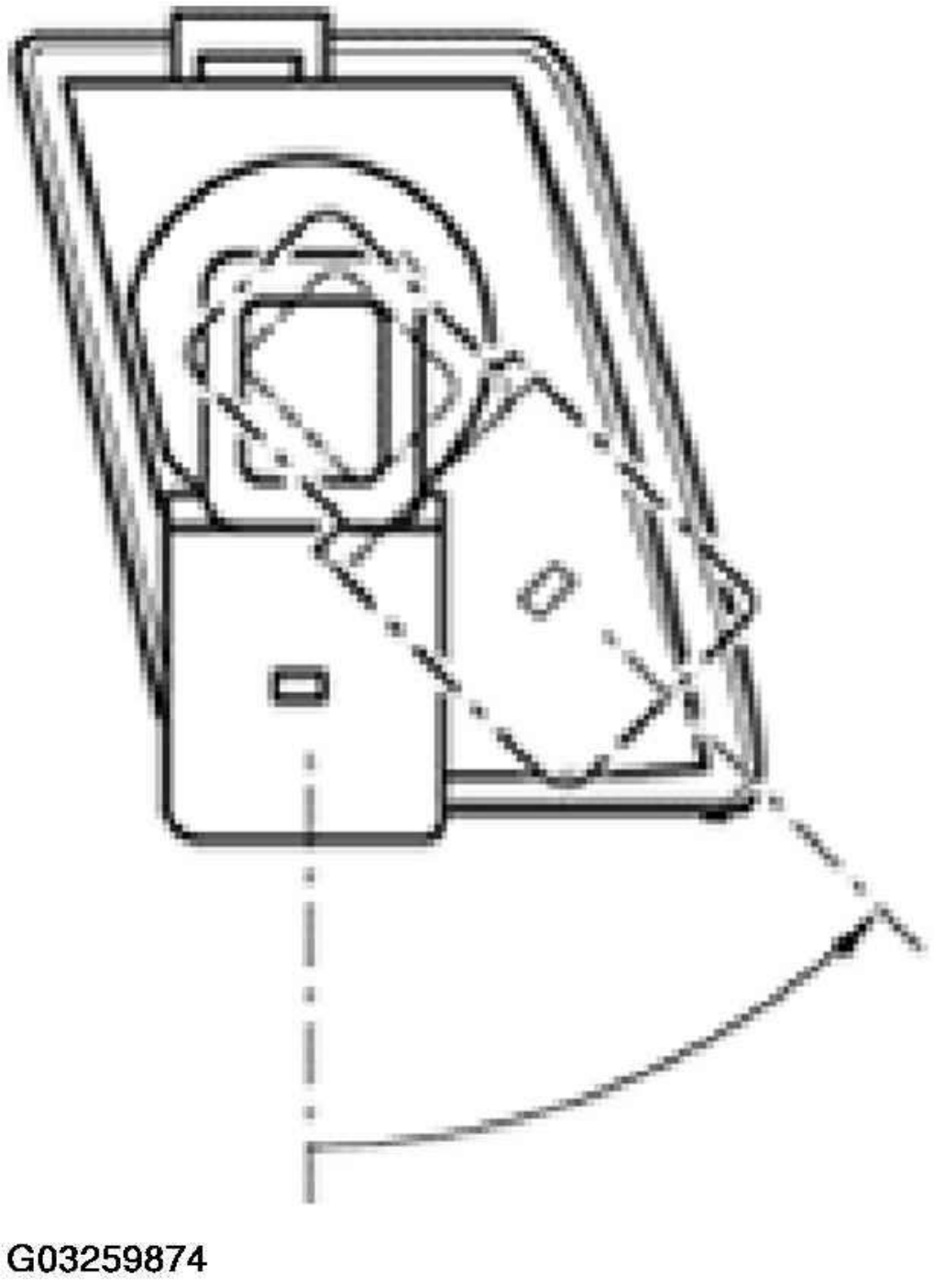


Fig. 88: Removing License Plate Light Bulb From Holder

Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Pull out bulb (12V/5W), do not turn.

Installing

CAUTION: Do not touch the glass portion of the bulb with bare hands. The moisture and/or grease from fingers that evaporates on the bulb during operation, can cause the glass to cloud over.

- Install in reverse order of removal.
- When installing, make sure bulb holder engages in housing by turning in opposite direction shown -arrow-. See **Fig. 88** .

STEERING COLUMN SWITCHES

STEERING COLUMN SWITCHES, REMOVING AND INSTALLING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch off ignition and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified. See BATTERY, DISCONNECTING AND RECONNECTING .**

WARNING: Airbags and related equipment (e.g. steering wheel) must only be disassembled, assembled and repaired by trained VW Service Department personnel.

- **Before working on any airbag, steering wheel or steering column components, first always disconnect the battery.**
- **Make sure that no person is in the vehicle when connecting the negative (-) battery terminal.**

Special tools and equipment

VAG1332 torque wrench (40 - 200 N.m)

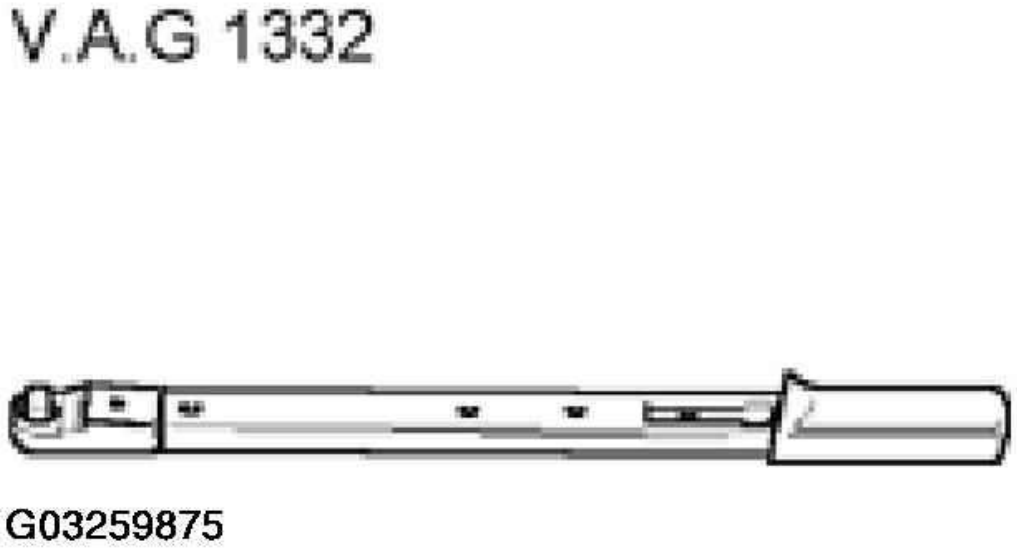


Fig. 89: Identifying VAG 1332 Torque Wrench (40 - 200 N.M)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Remove driver-side airbag unit.

  See appropriate airbag article in RESTRAINTS.

- Remove steering wheel bolt -1-.

  Tightening torque: 50 +/- 5 N.m (37 +/- 3.7 ft. lb)

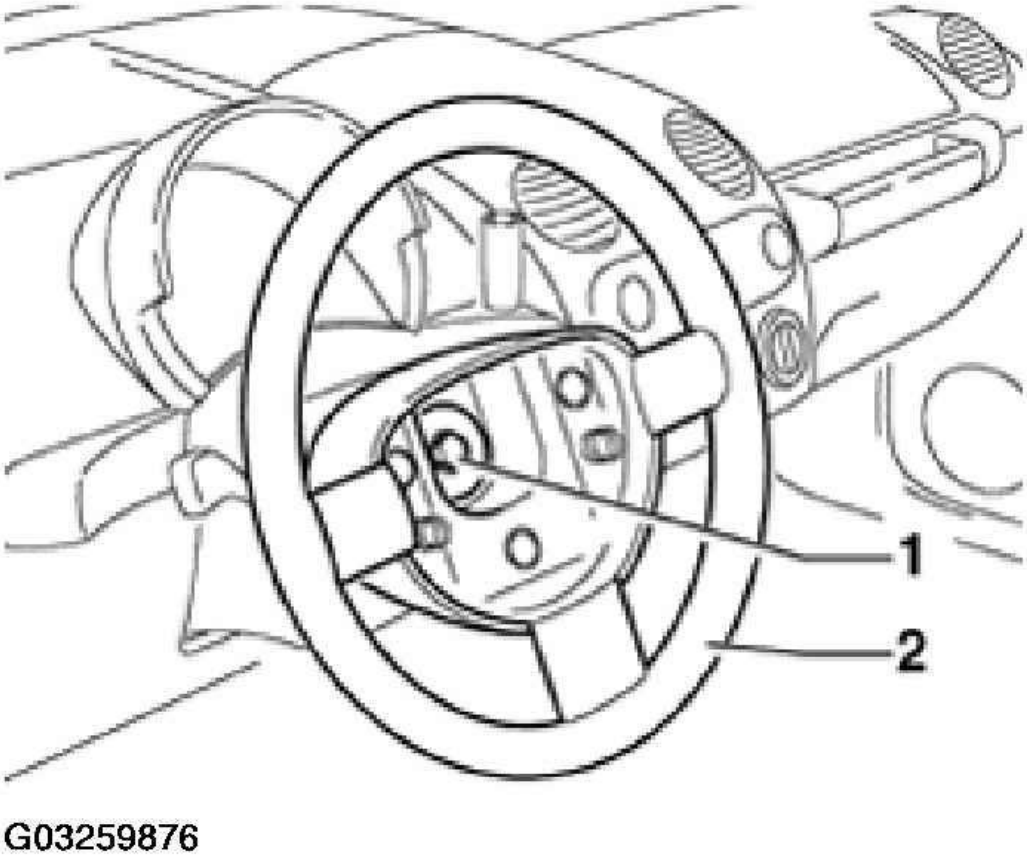


Fig. 90: Removing Steering Wheel Bolt
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Make one center punch mark on multi-point socket-head bolt -1-.

NOTE: Multi-point socket-head bolts that already have five center punch marks must be replaced.

- Position steering wheel -2- in center position (wheels straight ahead).
- Remove steering wheel -2- off steering column.
- Remove two Phillips-head screws (arrows).

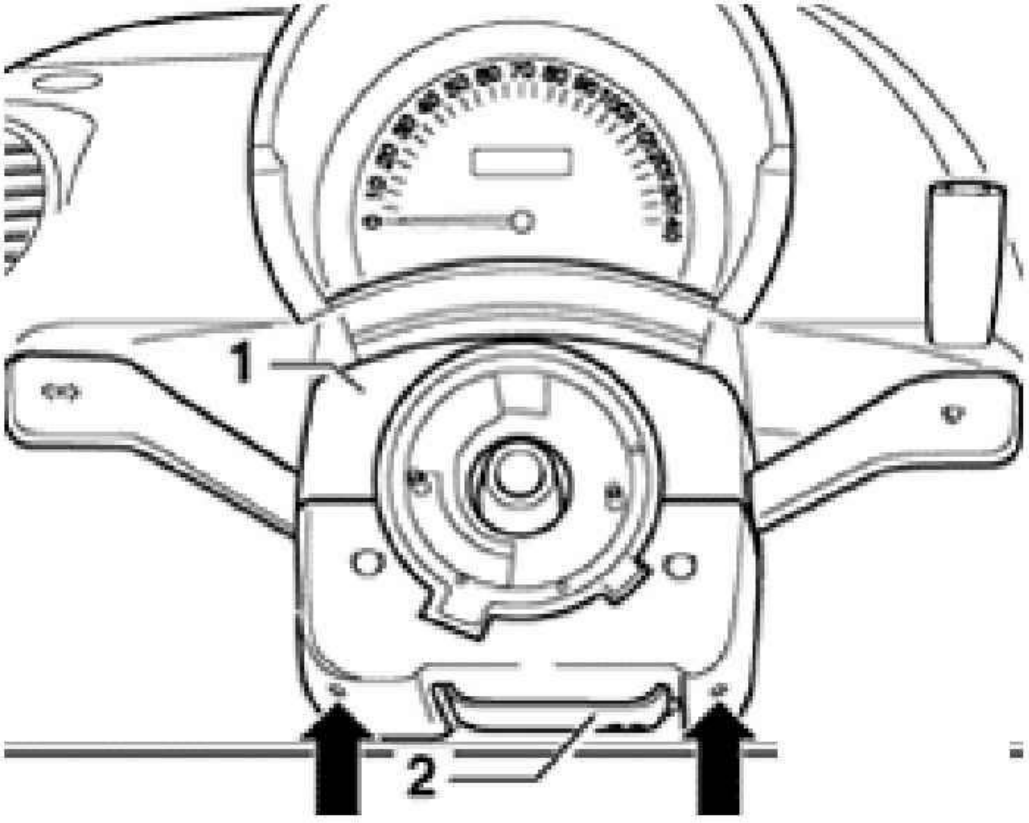


Fig. 91: Removing Two Phillips-Head Screws & Steering Column Switch Trim
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove upper steering column switch trim -1-.
- Remove four Phillips-head screws (arrows).

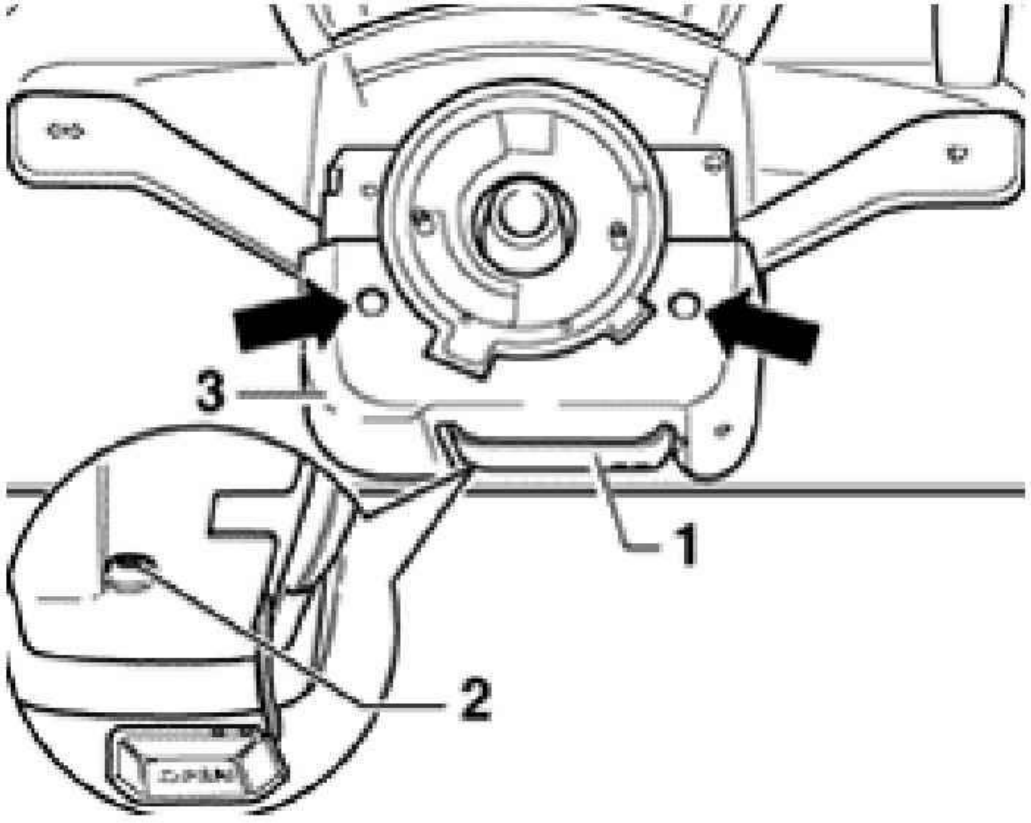


Fig. 92: Removing Four Phillips-Head Screws - Lower Steering Column Switch Trim
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove socket head hex bolts -1-.
- Release steering wheel height adjustment -2-.
- Remove lower steering column switch trim -3-.
- Remove socket head bolt -1-.

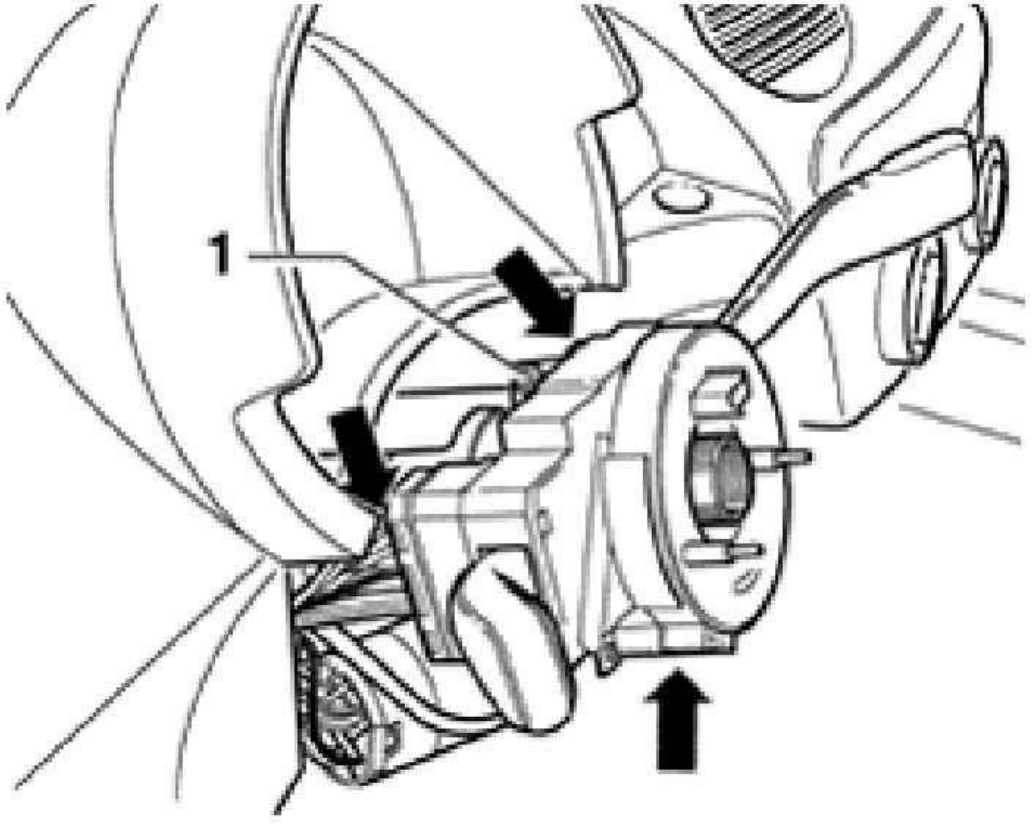


Fig. 93: Removing Socket Head Bolt From Steering Column Switches
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Disconnect electrical connectors (arrows) from steering column switches.
- Remove steering column switches.

Installing

- Install in reverse order of removal.

STEERING COLUMN SWITCHES, CONNECTOR ASSIGNMENTS

Switches for windshield wiper and washer system

A - 6-pin connector

1 - 4 - Open

5 - Windshield wiper intermittent regulator to automatic intermittent washer/wiper relay

6 - Windshield wiper intermittent regulator -terminal 31

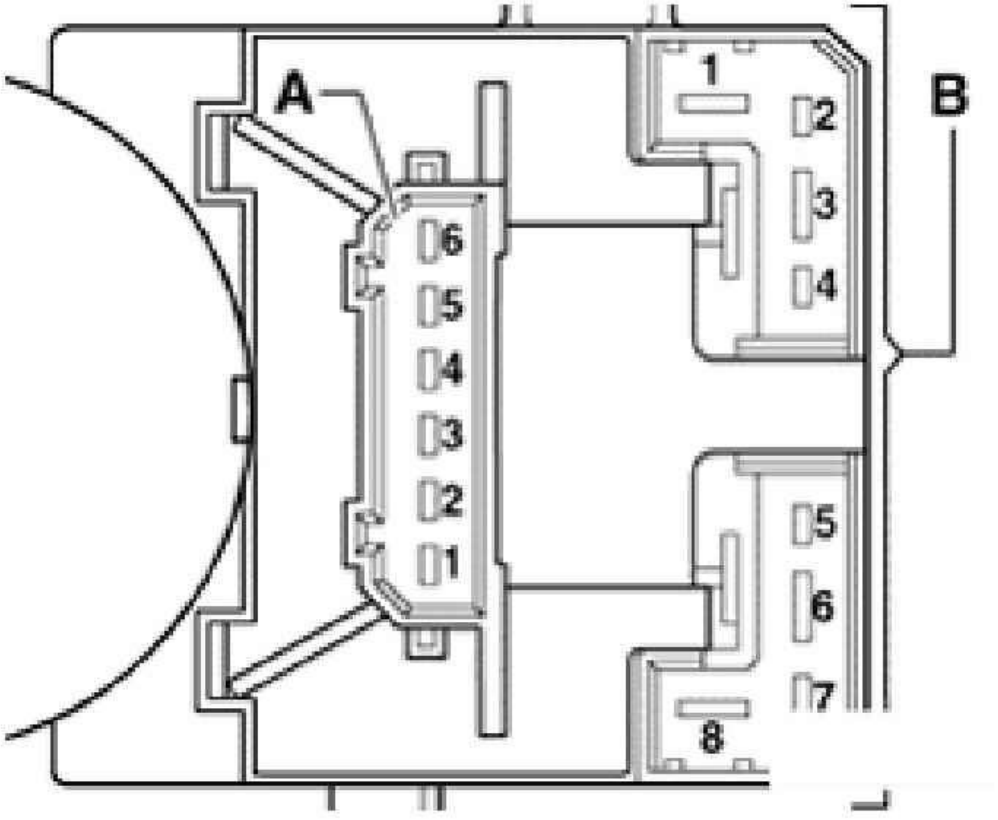


Fig. 94: Identifying Steering Column Switch Connector A (6-Pin) & Connector B (8-Pin)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

B - 8-pin connector

NOTE: The following list refers to items in Fig. 94 .

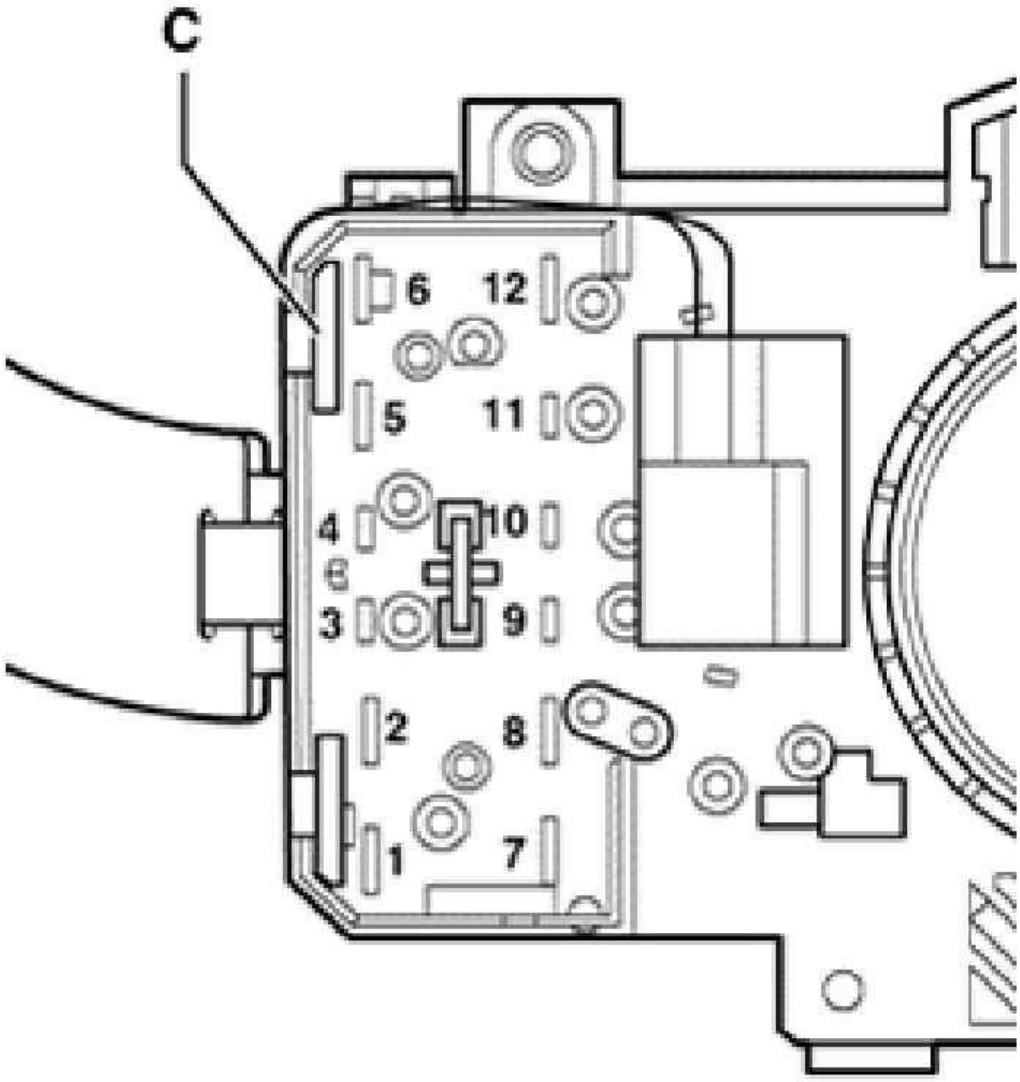
1. Windshield wiper switch - terminal 53
2. Windshield wiper switch - terminal 31
3. Windshield wiper switch - terminal 53e
4. Windshield wiper switch - terminal 53c
5. Windshield wiper switch - rear window wiper
6. Windshield wiper switch - terminal 53b
7. Windshield wiper switch - intermittent operation
8. Windshield wiper switch - terminal 53a

Switches for turn signals, high and low beam, headlight dimmer/flasher switch and parking light

C - 12 pin connector

NOTE: The following list refers to items in Fig. 95 .

1. Headlight dimmer/flasher switch - terminal 30 (B+)
2. Headlight dimmer/flasher switch - terminal 30 (B+)
3. Turn signal switch - terminal L
4. Parking light switch - terminal P
5. Turn signal switch - terminal 49a
6. Horn plate - terminal 71
7. Headlight dimmer/flasher switch - terminal 56
8. Headlight dimmer/flasher switch - terminal 56b
9. Parking light switch - terminal PL
10. Parking light switch - terminal PR
11. Turn signal switch - terminal R
12. Headlight dimmer/flasher switch - terminal 56a



C - 12 pin connector

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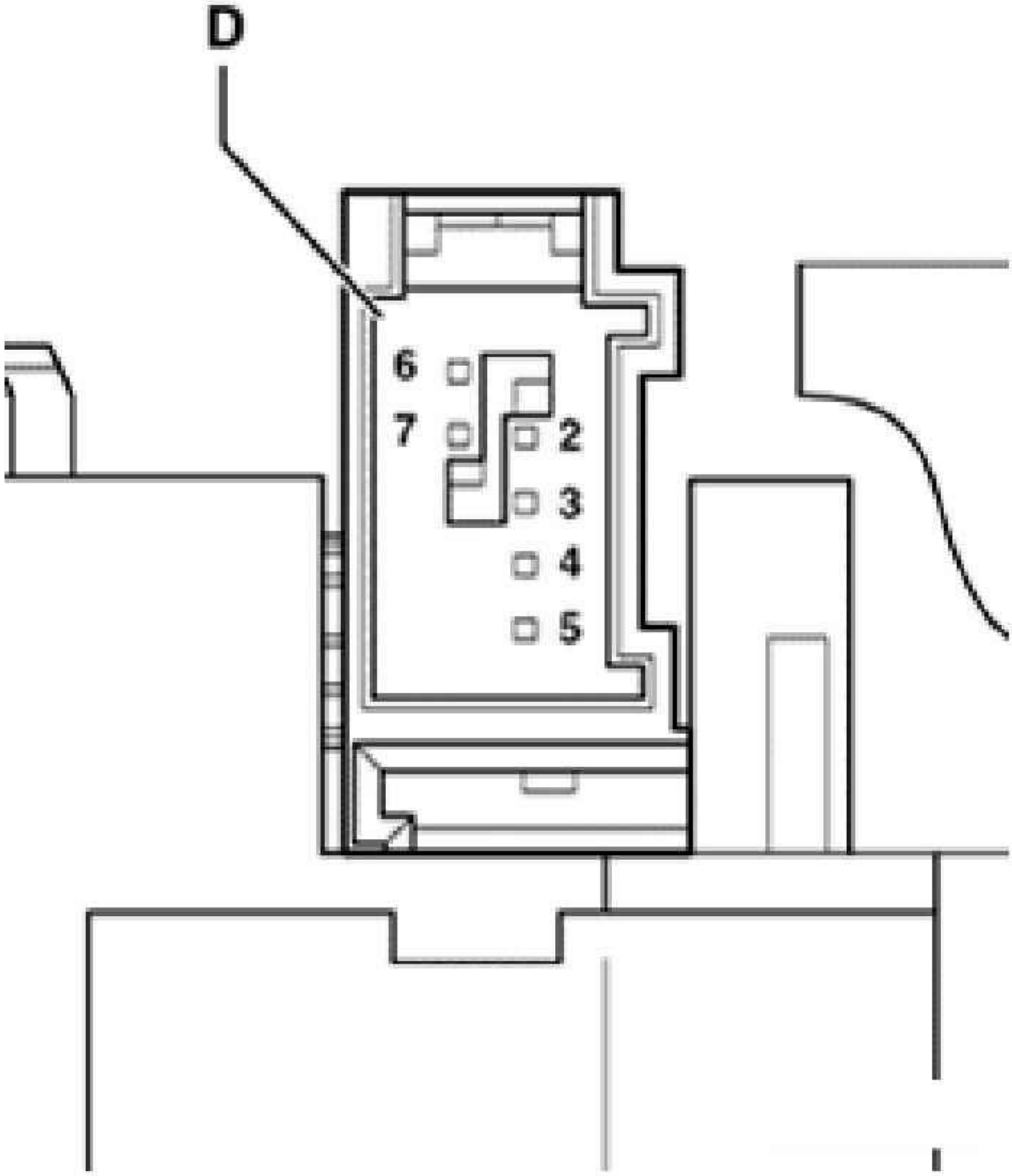
Fig. 95: Identifying Connector C (12-Pin) Pins
Courtesy of VOLKSWAGEN OF AMERICA, INC.

Switch for cruise control system

D - 10-pin connector

NOTE: The following list refers to items in Fig. 96 .

1. Open
2. Switch for CCS - On/Off
3. Switch for CCS - Set / accelerate
4. Switch for CCS - Reset / Resume
5. Switch for CCS - Reset / Resume
6. Switch for CCS - On/Off
7. Switch for CCS
8. Open
9. Open
10. Open



D - 10-pin connector

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Fig. 96: Identifying Cruise Control System Connector D (10-Pin)
Courtesy of VOLKSWAGEN OF AMERICA, INC.

IGNITION/STARTER SWITCH AND LOCK CYLINDER

LOCK CYLINDER, REMOVING AND INSTALLING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch off ignition and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified. See BATTERY, DISCONNECTING AND RECONNECTING .**

Special tools and equipment

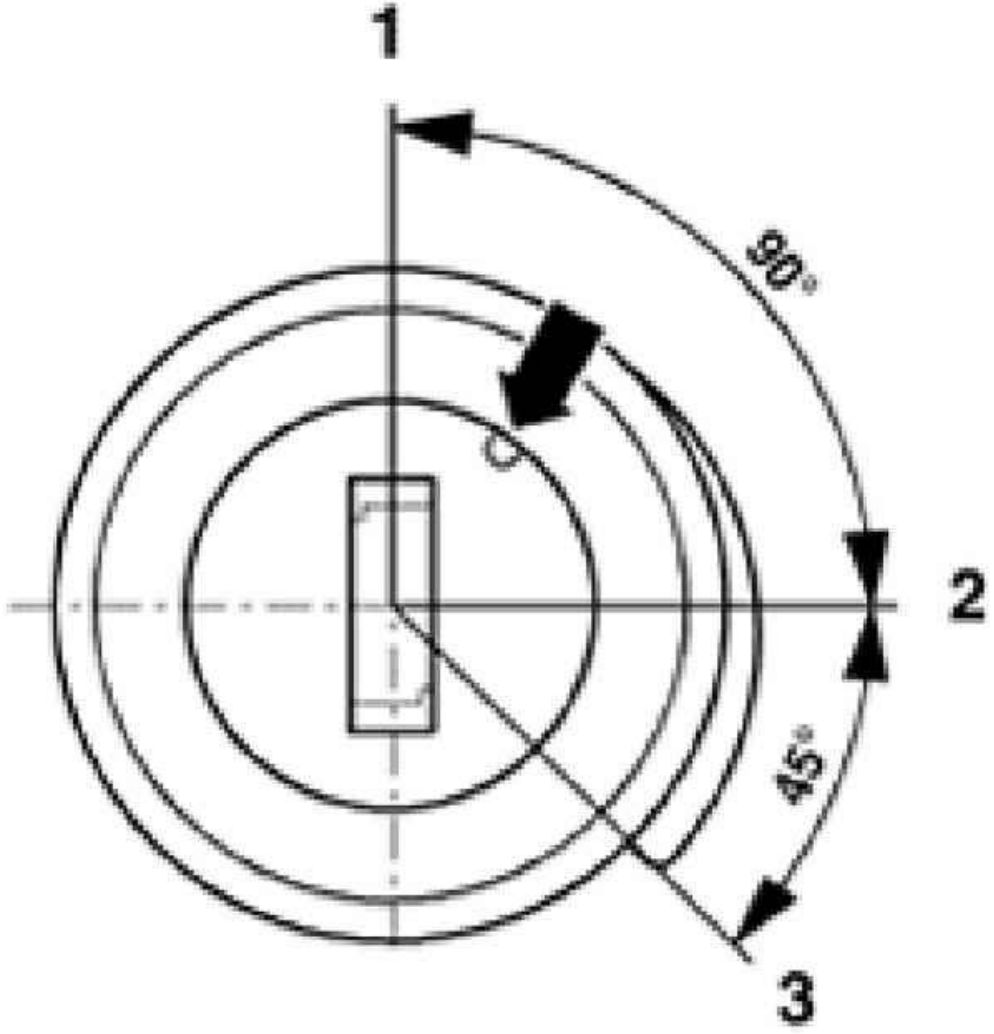
Steel wire, 1.2 mm (0.047 in.) thick

Removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Remove upper and lower steering column switch trim. See **STEERING COLUMN SWITCHES** .
- Insert ignition key in lock cylinder.
- Turn to "Drive" position.

Position of key in lock cylinder:

1. Position "Stop"



1 - Position "Stop"

2 - Position "Drive"

3 - Position "Start"

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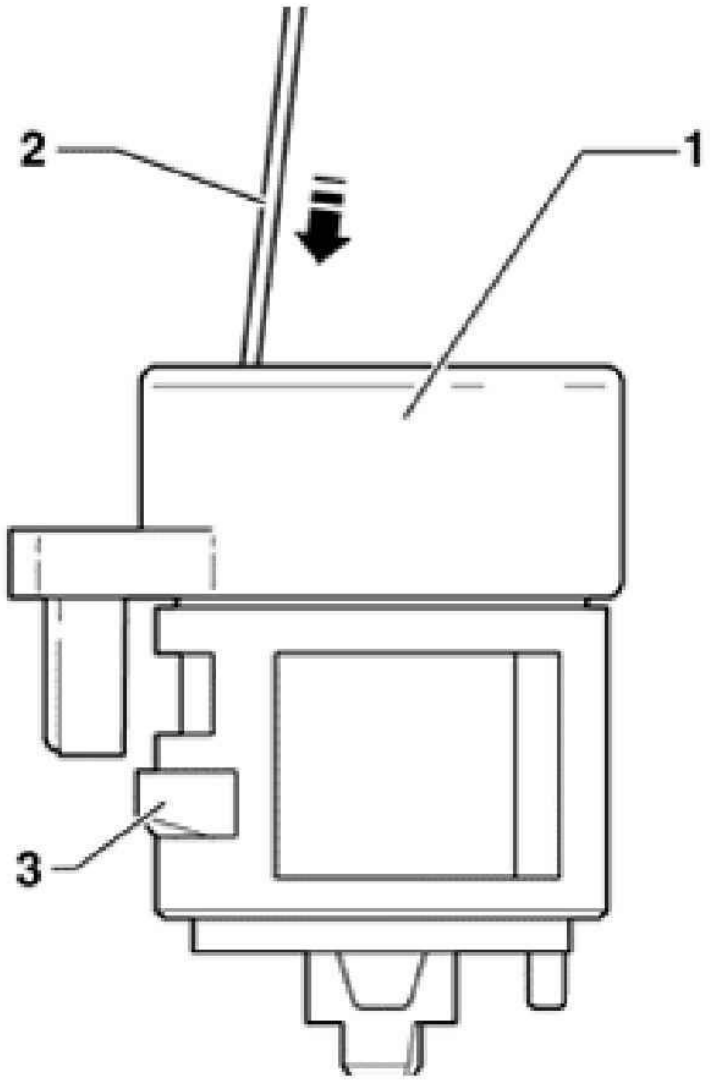
Fig. 97: Identifying Position Of Key In Lock Cylinder
Courtesy of VOLKSWAGEN OF AMERICA, INC.

2. Position "Drive"
3. Position "Start"

- Insert wire (approx. 1.2 mm diameter) in drilling next to ignition key -arrow-. See **Fig. 98** .
- Release lock cylinder securing lever using wire -2- and remove lock cylinder from steering lock housing.



1 - Lock cylinder

2 - Wire (approx. 1.2 mm diameter)

3 - Securing lever

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Fig. 98: Removing Lock Cylinder
Courtesy of VOLKSWAGEN OF AMERICA, INC.

1. Lock cylinder

2. Wire (approx. 1.2 mm diameter)
3. Securing lever

Installing

- Insert ignition key into lock cylinder.
- Turn to "Drive" position.
- Release securing lever using wire (approx. 1.2 mm diameter) and insert lock cylinder in steering lock housing.
- Remove wire out from lock cylinder and check that lock cylinder is seated properly in steering lock housing.
- Install steering column switches and steering wheel trim. See **STEERING COLUMN SWITCHES** .

IGNITION/STARTER SWITCH, REMOVING AND INSTALLING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch off ignition and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified. See BATTERY, DISCONNECTING AND RECONNECTING .**

Special tools and equipment

Sealant "D2"

Removing

- Disconnect battery. See **BATTERY, DISCONNECTING AND RECONNECTING** .
- Remove upper and lower steering column switch trim. See **REMOVING** .
- Disconnect multi-pin connector from ignition/starter switch.

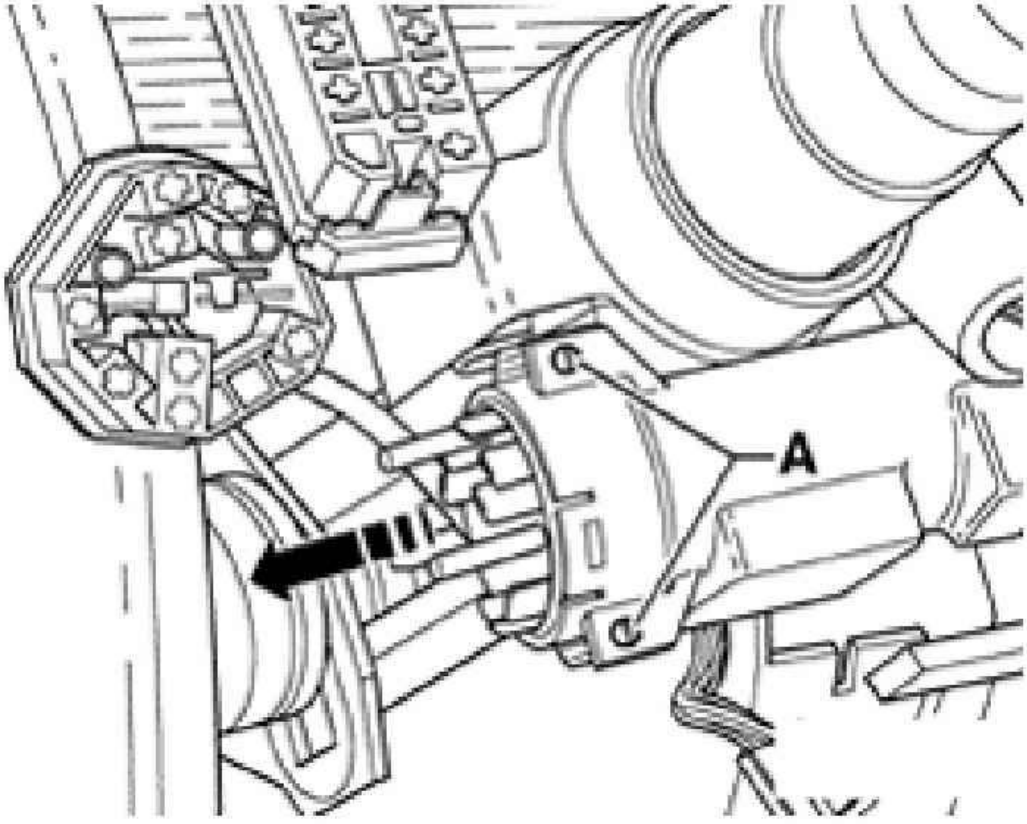


Fig. 99: Locating Ignition/Starter Switch Screws
Courtesy of VOLKSWAGEN OF AMERICA, INC.

- Remove locking fluid (paint) from threaded holes of screws -A-.
- Loosen two screws -A- slightly and pull ignition/starter switch out from steering lock housing in direction shown -arrow-.

Installing

- Push ignition/starter switch into steering lock housing.

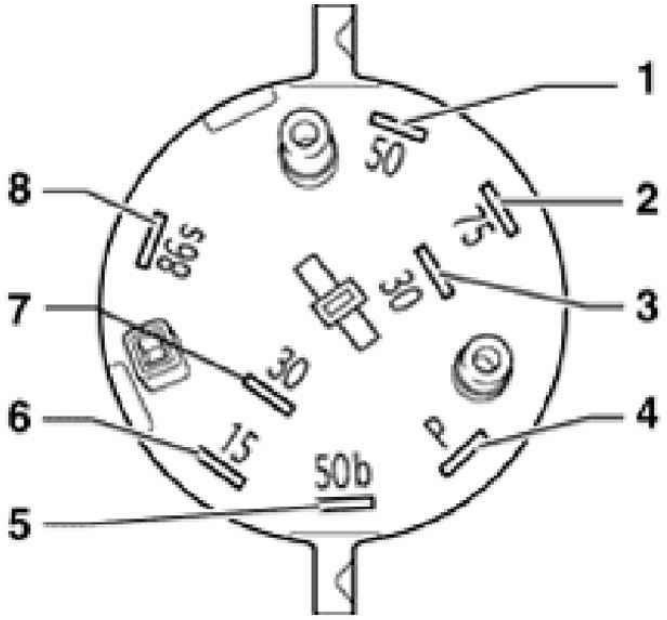
NOTE: When installing the ignition/starter lock switch ensure that the ignition/starter lock switch and the lock cylinder are in the same position, e.g. "ignition on".

- Tighten screws and seal securing holes with sealant D2.
- Connect multi-pin connector to ignition/starter switch.
- Install steering column switches and steering wheel trim.

IGNITION/STARTER SWITCH, CONNECTOR ASSIGNMENTS

Connector, 8 pin

1. Terminal 50
2. Terminal 75
3. Terminal 30
4. Terminal P
5. Terminal 50b
6. Terminal 15
7. Terminal 30
8. Terminal 86s



1 - Terminal 50

2 - Terminal 75

3 - Terminal 30

4 - Terminal P

5 - Terminal 50b

6 - Terminal 15

7 - Terminal 30

8 - Terminal 86s

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Fig. 100: Identifying Ignition/Starter Switch Connector (8-Pin) Terminals
Courtesy of VOLKSWAGEN OF AMERICA, INC.